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Commercial Standards For Paper Advocated

Meeting Called by Bureau of Standards At Washington Last Week to Discuss Simplification of Paper Was Attended by Nearly 100 Delegates Representing 2,600 Individual Organizations—President S. L. Willson, of American Paper & Pulp Association to appoint Paper Manufacturers Committee to Develop Tentative Specifications and Report Back

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 9, 1929.—A second effort is now in progress for the establishment of commercial standards for paper. From the number of persons attending the conference on the subject at the Bureau of Standards here last week, this effort will be a success.

Several years ago when the Simplified Practice Division of the Department of Commerce was established by Herbert Hoover the question of the simplification of paper came up in the regular course of events. Committees were appointed, meetings were held, and a simplified program was adopted, which never had the enthusiastic support of the paper manufacturers of the country.

It was stated at the time that the manufacturers felt that any program of the kind should be "pushed" by the consumers of paper as the manufacturers did not want to be put in the position of trying to "force" their customers to take a simplified product.

The meeting last week was called by the Bureau of Standards largely at the request of the National Association of Purchasing Agents and similar organizations, as consumers.

As the net result of last week's conference, S. L. Willson, president of the American Paper and Pulp Association, will appoint a committee of paper manufacturers to develop tentative specifications and report back at another general conference to be held probably early in November in this city and to be attended by paper manufacturers, distributors and consumers.

Nearly 100 delegates attended the conference last week and it was stated that they represented some 2,600 individual firms. The avowed purpose of the conference was to determine consumer and distributor demand for the establishment of commercial standards covering service and permanence of record and printing papers, including the following fine papers: blotter, bond, book, bristols, post card stock, coated boards, cover papers, envelopes, ledgers, mimeograph, offset, manifold, and safety body stock.

Dr. Burgess Welcomes Delegates

"It may be said that, in general, record printing papers are purchased largely on the basis of price," said Dr. George K. Burgess, Director of the Bureau of Standards, in a welcoming talk to the conference.

"Appearance, color or finish being considered paramount," he continued, "with little consideration for special adaptation to the particular use other than that gained from individual experience. It is believed that an open discussion of actual paper requirements by the various groups of distributors and consumers may serve as a basis for the preparation of specifications which may be established later as commercial standards of the industry for the various grades of record and printing papers. The primary object is, of course, to eliminate some of the waste that now occurs in practically every business due to lack of knowledge and faulty principles in paper buying.

"The National Association of Purchasing Agents and the American Paper and Pulp Association suggested that the Bureau of Standards, through its Division of Trade Standards, put its shoulder to the wheel as an impartial coordinating agency to stimulate the development of voluntary standards within the industry."

In addition to the set talks that were made there was considerable discussion of the subject from the floor. Fiber content was not included in the discussions, which were concerned with the standardization of papers from the point of view of the consumer and dealt chiefly with questions of strength, durability, color and appearance.

Ray M. Hudson Addresses Conference

Ray M. Hudson, Assistant Director of the Bureau of Standards, in charge of the Commercial Standardization Group, addressed the conference on "Simplification of Paper Sizes," which was followed by a group discussion of "Standardization of Paper from the Consumers and Distributors Point of View."

James J. McCue, of the records office of the City of New York, told of the needs of municipalities, and stated that as the result of investigation and research and of careful buying, expenditures last year for paper for New York City use had been $100,000 less than in 1909.

Among others who talked were included: Raymond E. Flynn, of the Union Trust Company, of Detroit, who talked on "The Bankers' Need for Standards of Paper Quality"; Lewis A. Jones, of the New York Power and Light Corporation, on "Quality Standards for Paper for Public Utilities"; Leo H. McCall, of the New York Life Insurance Company, on "Paper Standards for Insurance Companies"; James W. King, of the Electric Bond and Share Company, on "Investment House Requirements for Paper"; H. M. Werntz, of the Westinghouse Electric and Manufacturing Company, on "Industrial Users Paper Requirements"; Theodore M. Johnson, of the University of New York, on "The Educational Buyers' Paper Requirements"; Frank T. Swain, of the National Association of Purchasing Agents, on "How Standardization of Paper Will Simplify the Purchasing Agents Work and Increase His Efficiency"; H. P. Pitcher, of R. H. Macy & Company, on "The Department Store Interest in Paper Standardization"; W. H. Walling of the Mortimer-Walling, Inc., on "The Value of Paper

(Continued on page 70)

Business Practice Rules for Kraft Industry

Federal Trade Commission Affirmatively Approves Nine Rules As Covering Unfair Methods of Competition While Eight Rules Covering Other Practices Condemned by the Industry Are Accepted As Expressions of the Trade—Formal Statement of the Commission

Washington, D. C., October 9.—Rules of business practice adopted by the kraft paper industry at a trade practice conference in an effort to eliminate unfair methods of competition and other destructive practices, have been acted upon by the Federal Trade Commission.

Nine rules were affirmatively approved as covering unfair methods of competition, while eight rules covering other practices condemned by the industry were accepted as expressions of the trade.

A resolution adopted by the industry to the effect that a permanent committee of the trade be formed to investigate violations of these rules from time to time was not accepted by the commission although the commission has no objection to the association having such a committee. This resolution was considered by the commission inappropriate as a trade practice rule.

Rules affirmatively approved concern such subjects as: Inducing breach of contract; defamation of a competitor; disparagement of a competitor's goods; misrepresentation of kraft paper as to weight and other qualities; selling below cost; enticement of employees of a competitor; discrimination in price; and making false reports of capacity, production, sales, orders or shipments.

The foregoing rules as well as the eight rules accepted by the commission as expressions of the trade, may be read in the formal statement of the commission to the kraft paper industry, full text of which is as follows:

Statement by the Commission

A Trade Practice Conference for the Kraft Paper Industry was held in the United States Chamber of Commerce Building, Washington, D. C., June 28, 1929, presided over by Commissioner William E. Humphrey. Assistant Directors of Trade Practice Conferences, George McCorkle and Stephen C. Van Fleet, were present and assisted at the Conference.

After registration of those present and the election of a Secretary, Commissioner Humphrey addressed the meeting, speaking first generally upon the Federal Trade Commission, its organization and work, and secondly, more specifically upon trade practice work. The Commissioner dwelt upon the growth and development of the work which led up to the formation of the Trade Practice Conference Division of the Federal Trade Commission.

In order to give specialized direction to the work of assisting the various industries to accomplish self-government by regulating their practices and methods within the law, with a due regard for the public interest, the Commission, in 1926, created the Division of Trade Practice Conferences, and this work has been received by the public with such commendation that more than sixty trade practice conferences have been held.

Commissioner Humphrey further stated that any conference held by a particular industry was in reality the conference of the industry participating even though the conference must, of necessity, have the sanction of the Federal Trade Commission. The members of such conferences are permitted to discuss and pass any resolutions pertaining to their industry which they see fit. The proceedings of the conferences, including all resolutions adopted by the industry, are presented to the full Commission which, after due consideration, gives its approval or disapproval of the same.

It is estimated that eighty-five per cent (85 per cent) of the Kraft Paper Industry was present or represented at the Conference.

L. Bittner, Secretary of the National Kraft Paper Manufacturers Association, New York, N. Y., was unanimously elected Secretary of the Conference.

Resolution 6 was divided, the first sentence thereof appearing as Rule 10, Group II; the remainder appearing as Rule 6, Group I.

Resolution 17, creating and dealing with a committee of the industry, was not accepted by the Commission, being inappropriate as a trade practice conference rule. The Commission, however, has no objection to the industry's having such a committee, and the resolution appears in an appendix to this statement.

The remaining resolutions, after amendment in some instances were accepted by the Commission and become the rules of business conduct on the subjects covered. Those appearing in Group I, having been held by the Commission to condemn unfair methods of competition, are affirmatively approved, and those appearing under Group II are accepted as expressions of the trade.

Group I

RULE 1. Inducing or attempting to induce the breach of a contract between a competitor and his customer during the term of such contract is an unfair trade practice.

RULE 2. The defamation of a competitor by false statements, implying dishonorable conduct, inability to perform contracts, or questionable credit standing is an unfair trade practice.

RULE 3. The false disparagement of the weight, substance, strength, grade or quality of a competitor's goods, either by word or act, such as deceptive tests, is an unfair trade practice.

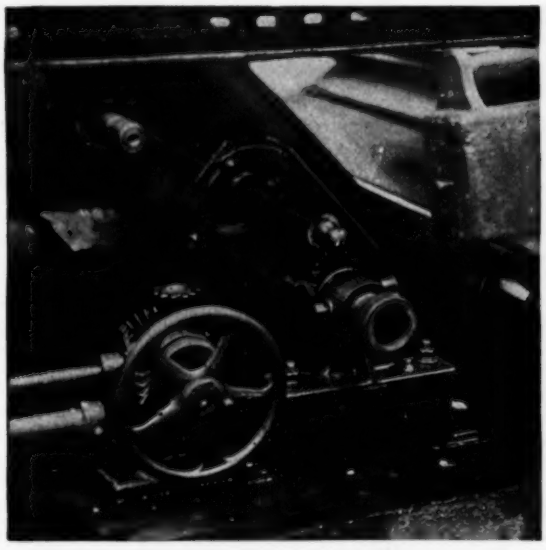
RULE 4. The misrepresentation of kraft paper as to weight substance, strength, grade or quality is an unfair trade practice.

RULE 5. Malicious interference with a competitor's business by enticement of his employees from his employment is an unfair trade practice.

RULE 6. (Formerly Resolution 6, in part) Discrimination in price between customers of the same class buying the same grade and/or quality of paper which (a) is not made on account of difference in quantity of paper sold, or (b) is not made as due allowance for the difference in cost of selling or transportation, or (c) is not made in good faith to meet the price of a competitor selling the same grade or quality of product is an unfair trade practice where the effect of such practice may be to substantially lessen competition between such buyers.

RULE 7. Discrimination in price between customers by the payment or allowance of secret rebates, refunds, credit or unearned discounts, either in the form of money or otherwise, or extending to certain purchasers special services or privileges not extended to all customers under like terms and conditions, amounting to discrimination, is an unfair trade practice.

RULE 8. The selling of goods below cost for the purpose of injuring a competitor and with the effect of lessening competition, is an unfair trade practice.



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RULE 9. (Formerly Resolution 13) The making of false reports of capacity, production, sales, orders or shipments, is an unfair trade practice.

Group II

RULE 10. (Formerly Resolution 6, in part) The practice of making sales on an F. O. B. mill basis has long been an established trade custom and should be followed.

RULE 11. (Formerly Resolution 9) The guarantee or agreement by the seller to protect the buyer, by rebates, allowances, or any device, against reductions in the seller's price made subsequent to the date of shipment to such buyer is condemned by the Industry.

RULE 12. (Formerly Resolution 10) Each manufacturer of kraft paper in the Industry uses certain definite standard specifications. Deviation from this standard in making quotations encourages manipulation and fraud on the buyer, is a bad trade practice, and is condemned by the Industry.

RULE 13. (Formerly Resolution 11) In order to enable sellers and buyers of kraft paper to have an intelligent basis upon which to conduct transactions and correctly to apportion additional costs of manufacture to the numerous varieties of orders, a standard basic weight in conformity with each manufacturer's practice with reasonable differentials for variations in weight and for special services, such as marking, labelling, cutting and packing, has been established, every seller having absolute freedom to fix his base price. The manipulation of such differentials or discriminations between customers in such differentials, destroys any basis for open, fair competition, results in confusion and deception of buyers, is a bad trade practice, and is condemned by the Industry.

RULE 14. (Formerly Resolution 12) Price schedules published and presumably representing the selling price on given quantities for shipment to the territory indicated should truthfully represent the prices and conditions under which sales are being made. The publication of such schedules, when not followed by the seller, deceives competitors, results in descrimination in price, defrauds the unwary buyer, and is condemned by the Industry as an objectionable trade practice; provided, however, that nothing in this rule shall be construed as obliging anyone to maintain such published price any length of time.

Note: Published prices are defined as such prices as are set forth in a regularly issued schedule and distributed or shown to agents, salesmen, dealers and buyers.

RULE 15. (Formerly Resolution 14) The entering of any order by a manufacturer or his agent, which does not specify quantity, price and date of shipment, for the purpose of protecting purchasers against future price advances leads to discrimination, fraud, suspicion and ill-feeling in the industry, is a bad trade practice, and is condemned by the Industry.

RULE 16. (Formerly Resolution 15) The secret violation of any of said rules, those accepted by the Federal Trade Commission merely as an expression of the industry, as well as those approved by the Commission, is condemned by the Industry.

RULE 16. (Formerly Resolution 16) The sale of kraft paper in violation of any of the rules adopted by the industry under the auspices of the Federal Trade Commission, under the subterfuge that the seller is required to do so by a contract antedating the adoption of said rules, when in fact no valid and enforcible contract or agreement antedating the adoption of the rules exists, results in fraud and discrimination between purchasers, is a bad trade practice, and is condemned by the Industry.

By the Commission:

Otis B. Johnson,
Secretary.

Appendix

RESOLUTION 17. (Rejected) "Resolved, that the Executive Committee of the National Kraft Paper Manufacturers Association be, and hereby is, authorized to appoint a permanent committee of members and non-members of the Association to investigate alleged violations of these resolutions and to make complaints of such violations to the Federal Trade Commission, and if deemed advisable, to request the Federal Trade Commission from time to time to call new conferences of the industry for the purpose of amending these resolutions.

The foregoing resolution is not accepted by the Commission. The Commission has no objection to the Industry's having such a committee, but in the judgment of the Commission such resolution is inappropriate as a trade practice conference rule.

Boston Paper Market Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 7, 1929.—The recent tumble in the New York stock market brought to at least some of the dealers in bond papers in this vicinity the feeling that there would be much more demand for bond paper on the part of investment houses. When there is less interest in Wall Street investment houses send out advertising matter to prospective customers from lists which they have on hand.

In times of a bull movement, however, all they need to do is to place an advertisement in the newspapers and business will come to their doors. After a crash in stocks interest recedes again and the stock brokers resume their solicitation of business from their lists, using good bond paper for their circular letters and for description of the securities offered. Some of these have lists of some 25,000 customers.

An estimate in the paper trade places the amount of bond paper used in this city by the investment houses when they are soliciting business at a carload a week. The volume of orders for fine papers generally in this market has been of substantial size, although some report a little less than normal in September. Conditions in coarse paper appear considerably more favorable than last spring. Movements in kraft have been at least fair, and in some instances a very sizable quantity of business has been booked.

A smaller amount of ground wood available presages the advance of $2.50 a ton in single manila lined chip board which is now quotable at $47.50 to $50. The shortage of ground wood has developed because of less power for grinding the wood, occasioned by low water. The quotation for filled news board still continues at $37.50 to $40, and for chip board at $35 to $37.50, but rumors persist that values will increase in the near future, probably $2.50 a ton on each grade.

Low water is ascribed as a reason for less demand from the mills for paper stock. Some of the mills are operating on half-time, but it is expected that with more rain this condition will be relieved. Better business is looked for before the end of the month. Values are no firmer and in a few instances have declined slightly. Members of the trade here have heard from reliable sources that mills in New York City and Philadelphia are paying higher prices for foreign dark cottons than manufacturers in this vicinity are giving. The current local quotation for dark cottons is 1.55. All grades of twine are selling in good volume. Prices are firm.

Appeals in Hanging Paper Case

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 2, 1929.—Commissioner of Customs, F. X. A. Eble, has notified the Assistant Attorney General in New York that the Treasury Department approves his action in filing an appeal with the United States Court of Customs and Patent Appeals in connection with the decision of the Customs Court in which it held that certain hanging paper, classified as dutiable at 1½ cents per pound plus 20 per cent ad valorem under paragraph 1309 of the tariff act of 1922, was properly free of duty as original paintings under paragraph 1704 of the said act.

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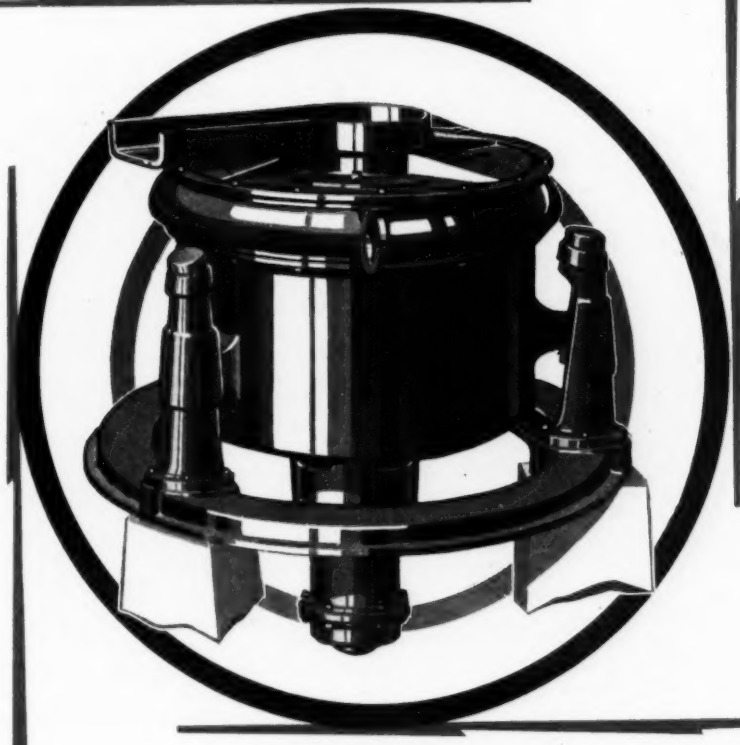

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National Safety Conference Meets in Chicago

Pulp and Paper Section Holds Interesting and Instructive Sessions During Convention—Timely Addresses Rendered by Safety Officials of Pulp and Paper Organizations—Presentation of Various Rewards and Trophies to Safety Contest Winners.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 7, 1929.—The Paper and Pulp Section of the National Safety Congress was recognized as one of the most well organized and progressive group meetings at the Stevens Hotel during the gigantic congress which embraced practically every kind of industry. Representative of pulp and paper mills from all over the United States were in Chicago practically the entire week from September 30 to October 4.

The Paper and Pulp Section had an opportunity to view the exhibits of over 150 leading manufacturers who presented the most modern developments in safety, first aid, and sanitary equipment. The mammoth Exposition Hall at the Hotel Stevens also was the scene of a talking moving picture demonstration staged by the Electrical Research Products Company while other special features included the Championship First Aid Team of the Public Service Company of Northern Illinois, who exhibited through the courtesy of the Chicago chapter of the American Red Cross; the Commonwealth Edison Company and the Peoples Gas Light and Coke Company.

Turning to the Paper and Pulp section exclusively the list of officers is as follows: General Chairman, Kenneth L. Faist, safety director, Champion Coated Paper Company; Vice-Chairman, Canada, A. P. Costigane, secretary and engineer, Ontario Pulp and Paper Makers Safety Association, Toronto; Vice-Chairman, South, G. W. Phillips, safety engineer, Champion Fibre Company, Canton, North Carolina; Vice Chairman, Middle West, M. G. Hoymann, staff superintendent personnel, Kimberly-Clark Corporation, Neenah, Wisconsin; Vice Chairman, Extreme Southern District, W. H. Jennings, safety engineer, Bogalusa Paper Company, Bogalusa, La.; Vice-Chairman, East, N. F. Bartlett, traffic manager, Hollingsworth & Vose Company, Boston; Vice-Chairman for Paper and Box Manufacturers, H. C. Sackett, paymaster, Alton Box Board and Paper Company, Alton, Ill. Secretary, D. D. Thirkield, Sorg-Oglesby-Smith Paper Company, Middletown, Ohio.

Regional Directors Address Meeting

The program of the Paper and Pulp Section covered Tuesday Wednesday and Thursday, October 2, 3 and 4. On Tuesday morning two minute reports were given by regional directors on activities in their various sections. At 10:00 a. m. E. W. Corn, field representative of the National Safety Council, talked to the section on the subject of "Irreducible Minimum and What Then." Mr. Corn's interesting discussion on the future possibilities in safety measures was followed at 10:45 by a discussion on "Reduction of Accident Frequency by Good Housekeeping," given by B. S. Edsall, Mgr., inspecting and rating department, Glen Falls Indemnity Company, Glenn Falls, N. Y. The remainder of the morning was given over to a general discussion.

An interesting meeting at 9:45 a. m. Wednesday morning was turned onto a Questions and Answers program with the discussion led by Samuel Pruyn, superintendent of employment, Finch, Pruyn & Co., Inc., Glens Falls, N. Y., and D. D. Thirkield, chairman safety committee, Sorg-Oglesby-Smith Paper Company, Middletown, Ohio. The character of the discussion lead to a number of frank questions and answers on items of unusual interest to those in attendance.

Safety and Efficiency Discussed

N. H. Bergstrom, treasurer of the Bergstrom Paper Company, Neenah, Wis., opened the Thursday meeting at 9:30 a. m. with a talk on "Paper Mill Safety and Efficiency." A close examination of Mr. Bergstrom's talk would give an excellent idea of the strong interest displayed by the pulp and paper mills on the relations between safety and efficiency. Following a short informal discussion J. J. Plzak of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., discussed the "Health Factor in Paper Mill Accidents." Referring to actual cases and giving a concise description of the health factor in each instance Mr. Plzak provided some interesting food for thought.

The sessions terminated on Thursday noon with a luncheon and meeting featured by presentation of various awards and trophies to safety contest winners including the presentation of the National Safety Council trophies by Major Henry A. Reninger, president of the National Safety Council, and the presentation of the *Paper Industry* trophy by Edward B. Fritz, publisher, the *Paper Industry*, Chicago.

Representatives of the paper and pulp section were also much in evidence at the annual banquet held in the Grand Ballroom of the Stevens Hotel on Wednesday Evening, October 2. The president's reception and dance, held Monday, September 30, in the Grand Ballroom of the Stevens was also well attended by the paper and pulp industry.

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A number of Chicago industrial plants offered their hospitality to delegates at the National Safety Congress. Delegations were given the opportunity to inspect the plants of nine industrial and two public utility concerns and although no paper or pulp mills were on the list some of the delegates to the paper and pulp section made the trips featured by exhibits of various safety devices and measures.

Groveton Paper Co. Entertains

BOSTON, Mass., October 7, 1929.—Twelve representatives from the Globe Paper Company, Inc., and the Howard Paper Company, Inc., were entertained by the Groveton Paper Company, Groveton, N. H., from September 28 to 30, inclusive. The guests left Boston at 11.30 Saturday morning in cars furnished by the hosts, accompanied by General Manager Edward MacDonald, who also returned to Boston with the party. The program included dinners and luncheons at several hotels of Groveton and vicinity and a visit to the plant of the company, on which the guests were accompanied by about twenty executives of the concern. The company is making rapid strides in the improvement of the plant, in regard to which the visitors are very enthusiastic.

Mr. MacDonald presided at the business sessions. Treasurer Frank E. Moses gave a talk on the Groveton Paper Company and its organization. Mr. MacDonald reviewed what the guests saw in the mills, giving a technical story in regard to what the company is making and what they are in a position to make. Raymond Barton, the head chemist, discussed the laboratory and research work of the organization. Kenneth Moses, manager of the Boston office of the Groveton Paper Company, was among those to welcome the party. Sunday afternoon golf players among the guests were at the Colebrook Country Club, and those who did not play golf were taken through the Dixville Notch. The visitors returned to Boston Monday afternoon.

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Scientific Forestry Demonstrated at Nekoosa

State Officials, Paper Manufacturers, Foresters, Land Owners and Others, Study Achievements of Nekoosa-Edwards Paper Co., as Possible Solution of Disappearing Forest Problem—Field Day May Have Important Effect on Extension of Forest Planting

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 7, 1929.—There was an epoch-making gathering last week in the little village of Nekoosa, up in the central part of Wisconsin, where quiet effort in the last four years on the part of the Nekoosa-Edwards Paper Company to prove the possibilities of scientific commercial forestry was the object of a demonstration for the public benefit of the Great Lakes states.

For two days state officials, paper and lumber company owners, state foresters, land owners and others gave serious study to the achievements of the Nekoosa-Edwards Company as the possible solution of the general problem of disappearing forests. Earnest discussion was held in conferences, the newly planted forests were inspected, and demonstrations were witnessed, all designed to pass on to the public what had been learned by the paper company through long experimenting and at considerable expense.

With the University of Wisconsin and the United States Forest Service co-operating, the company sent invitations far and wide inviting all interested persons to attend the two day session October 3 and 4. About fifty responded, including Governor Walter J. Kohler, of Wisconsin. A meeting of the advisory committee of the Lake States Forest Experiment Station and a banquet at the Bull's Eye Country Club were held the first day. On the following morning, a visit was made to the Nekoosa-Edwards nursery, luncheon was served at the summer home of J. E. Alexander, first vice president and general manager of the company, and demonstrations of planting, fire prevention and fire fighting were conducted.

At the opening banquet, William Mauthe, of Fond du Lac, Wis., chairman of the Wisconsin Conservation Commission, acted as toastmaster. Governor Kohler, in his address, urged a greater delegation of powers to the conservation commission and acknowledged the necessity for the more prosperous counties to help their neighbors in meeting the forest problem.

Delegates to the conference agreed that education must be the major key; that the public must learn that its timberlands are a trust and must be guarded through elimination of fire hazards. Dean W. C. Coffey, of the Agricultural College of the University of Minnesota, urged caution against too much haste in reforestation. He suggested a careful consideration of the uses to which land can be put and decried indiscriminate planting of forests without regard for their need and situation.

It was felt that the problem of forest fires is far from solution, proof being found in the conflagrations late this summer over large areas. Removal of slashings instead of burning them and weeding out of second growth timber when it hampers first growth were offered as suggestions.

Planting operations were conducted by F. G. Kilp, forester for the company. He showed methods of seed extraction from cones, preparation of seed beds, transplanting and other steps. Later the visitors were shown how to construct fire lines by pulling stumps and plowing up land adjacent to each forest tract, and how to keep the lines effective by use of the disc. Various types of tractors were in operation to show their uses. One small tract of trees was ignited so as to show the value of the fire lines and the use of fire fighting equipment brought to the field day by Grover Conzet, commissioner of forestry and fire prevention in Minnesota. Motion pictures were used at one of the sessions to show selective logging in the lake states.

With the program outlined by the Nekoosa-Edwards Paper Company, the first pulp wood harvest will take place in thirty-five years and enough wood can be cut each year thereafter to keep the large mills at both Nekoosa and Port Edwards, Wis., in operation on kraft papers. This was the aim of L. M. Alexander, president, who desired that the business be perpetuated both because of the millions invested and the accession of his sons to its management.

Fifteen hundred acres are already planted and the annual increase will be about 2,000 acres more. By the use of commercial fertilizers, the seedlings are as big in one year as others would be in three or more. The jack pines and other transplanted seedlings four years old are eight feet tall, full bodied and lusty.

Each forty acres is surrounded by a fire line as wide as a road, polwed clean. Pumps are stationed at intervals so fires can be checked quickly. The company intends to provide a fire truck especially equipped for extinguishing forest fires. This department of the business is under the direction of James B. Nash and the work is supervised by F. G. Kilp, forester.

It is believed that the field day wil have an important effect on the extension of forest planting. Raphael Zon, director of the Lakes States Experiment Station for the Federal Government, was present and took a prominent part in the activities.

Kimberly Clark Corp. Earnings

Earnings of the Kimberly-Clark Corporation, Neenah, Wis., will approximate $5.50 a share on the common stock for the year 1929, according to estimates based on the records thus far achieved this year. This compares with $4.31 a share in 1928, $5.09 in 1927 and $5.84 in 1926. The company paid a dividend of $1.11 for the first quarter of 1929, and $1.62 a share for the second quarter. The third quarter is expected to approximate the latter.

These earnings do not include any return from the Spruce Falls Power and Paper Company, Ltd., of Canada, fifty per cent of whose stock is owned by the Kimberly-Clark Company. With three machines in operation, the Canadian company has been producing at a substantial profit and will return at least fifty cents a share to stockholders, according to present estimates. In the future, the return is expected to be $1 a share annually.

Demand for the Kimberly-Clark Company's rotoprint and book papers, its principal products, and for Kotex, the manufacture of which is controlled, have continued at high levels during 1929. Wall paper business has been active, and the demand good in other specialties. About 95 per cent of the rotoprint paper used in the United States is made by the company.

Production will be stimulated when the company opens the former Sears, Roebuck & Co. plant, known as the Lakeview Paper Company, at Neenah about December 15. This is a two machine mill and is being thoroughly reconditioned. Additions are being built to provide more finishing room and warehouse space. The mill will produce hangings, high grade school papers, and other specialties, with a capacity of about 45 tons a day.

Capitalization of the company on June 30, 1929, was as follows: $6,000,00 of first mortgage 5 per cent bonds; $10,000,000 of 6 per cent cumulative preferred stock, and 499,800 shares of no par value common stock. The common stock at that time had a book value of $55.80 a share. The price range on the exchanges has been from a low of 45¼ to a high of 56½. Cash dividends have been paid at the rate of $2.50 a share annually. A stock dividend of 2 per cent was declared in January, 1929.

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Construction Work on Beauharnois Power Corp's Power and Navigation Canal Well Under Way —New Power Plant of James Mac Laren Co. Will be Located at High Falls and Will Have Initial Installation of Three 30,000 H.P. Units—New Dam Planned for Chats Falls

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 7, 1929.—The prelude to the financing of the giant power and navigation project of the Beauharnois Power Corporation is the granting of a Dominion charter to that company, just announced from Ottawa. The new company will own all the oustanding securities of the Beauharnois Light, Heat and Power, Beauharnois Construction, Beauharnois Land, Beauharnois Transmission and any other companies which may be incorporated to segregate the various branches of the parent corporation's activities.

The capital structure of the Beauharnois Power Corporation has been arranged so that there will be no change in the management for a period of ten years. The capital set up includes five management shares which, it is understood, will be held by the group of interests responsible for the initiation of the undertaking. The holders of the management shares have the sole right over the next ten years to elect the directorate after which these shares are convertible into class A common shares.

The authorized capitalization of the new corporation is as follows: Five management, preferred shares of no par value; 1,799,995 class A common shares of no par value; 3,200,000 class B non-voting common shares of no par value. Ranking senior to the capital stock issues, a Canadian banking syndicate will offer next month an issue of bonds of the new corporation with a bonus of common shares.

Construction work along the route of the power and navigation canal between Lake St. Francis and Lake St. Louis on the St. Lawrence River just west of Montreal began on August 1 last, and is well under way. Work this year and this winter will include banking the route of the new canal, and the assembling and erection of a large hydraulic dredge. Excavating operations next spring will be carried out by dredges and by gigantic movable leg excavators.

The Beauharnois Construction Company, the subsidiary company handling the entire job, has already ordered most of the equipment for its first dredge. These dredges will have a rated capacity of 1,100 cubic yards an hour through 4,000 feet of 26-inch pipe up a height of 35 feet.

Operations are now on a 24-hour-a-day basis. Next spring the first dredge and the movable leg excavators will also operate on a continuous basis. On the results achieved by these two distinct systems of excavation will depend the methods to be used to complete the undertaking.

The character of the excavation work is largely the same throughout the entire length of the new 15-mile canal. Save at the power house site, no rock cutting is required to complete the first installation. The entire excavation work is in marine clay which, construction operations elsewhere prove, can be handled efficiently and economically.

The board of Directors of the New Beauharnors Power Corporation will be announced shortly. According to rumor it will include representatives of the leading financial and industrial groups in Canada.

Another Huge Power Project

Progress has been made this week in another huge power project, this one being in connection with a large news print mill. The James MacLaren Company has given notice to the Quebec Government that it intends to construct a concrete dam and other works across the Lievre River at Cedar Rapids, Que., which will create a storage reservoir of 25,000,000,000 cubic feet of water. The dam will store at all seasons the water at White Fish Lake, Lac des Sables and Lievre River and its tributaries, with the object of conserving them so as to regulate their flow and thus to assure a uniform supply to the waterworks system and to mills, and a constancy of hydraulic power.

This great work forms part of a general development scheme undertaken by the James MacLaren Company. The works are divided into two principal divisions, namely, water power and pulp and paper. Work is well advanced on the construction of the news print mill, which will have a daily capacity of 250 tons. Approximately $6,000,000 will be expended on this unit.

The hydro power scheme of the MacLaren Company is extensive, involving utilization of its power potentialties on the Lievre River between Buckingham and Masson. At a site, adjacent to the lumber mills, the Company has developed 15,000 h. p., with which the mills are operated. The new plant, however, will be located at High Falls and will have an initial installation of three 30,000 h. p. units with provision for installation of a fourth at a latter date. The construction of the power house will cost approximately $5,000,000 and storage dam at Cedar Rapids $1,500,000. The two developments are expected to be completed in the spring of 1930.

Ottawa River Power Development

The granting of a contract this week to the Marrow and Beatty Company, of Peterborough, Ont., for the erection of a 30-foot dam on the Quebec side of the Ottawa river at Chats Falls, 35 miles north of Ottawa presages the largest water power development on the Ottawa River. The contract price, it is indicated, runs close to $2,000,000, and it was awarded to the Peterborough Company by the Powel Securities Corporation, of Montreal, the owners of the power rights at that point.

To date no contract has been awarded for the work on the Ontario side by the Ontario Government. It is believed, however, that this contract will be shortly awarded to the same firm and that the cost of the new dam, stretching completely across the river, will be between $3,000,000 and $5,000,000.

When completed the dam will stretch across the river for a distance of one and a half miles. The final stage in the work will mark the biggest single power development on the Ottawa River, 250,000 horsepower being available upon completion, it is said. Within a short time more than 1,000 men are expected to be employed on the job.

Some idea of the magnitude of the work may be gathered from the fact that the new dam will maintain the peak spring level of Chats Lake, which is 245 feet above the sea level. This will mean the backing up of the Ottawa River through Chats Lake almost to Arnprior, a distance of between twelve and fifteen miles. As a direct result, considerable land on both sides of the river will be flooded.

Atlantic Pulpwood Acquires Limits

The Atlantic Pulpwood Company, of Annapolis Royal, N. S., has acquired the MacFarlane property at Mull River consisting of 400 acres of timber lands.

Vancouver Kraft Mills

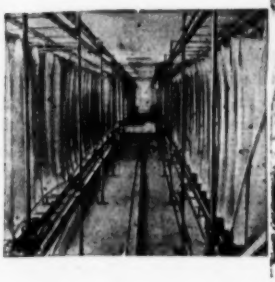
Construction work at the plant of the Vancouver Kraft Mills, Howe Sound, B. C., has been held up owing to a change of plan. Delays have been caused by the non-arrival of digesters and other mechanical implements from Germany and Sweden and pending the receipt of equipment, the work in process is being curtailed. High pressure boilers have been installed and it is expected that construction of the main plant will be resumed shortly.

The mill is owned by F. W. Leadbetter, who has extensive interests in pulp and paper projects in Washington and Oregon.

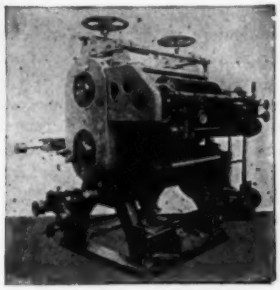
Waldron Multi-Tone Intaglio Printing Machine.

Waldron 6 Color Surface Printing Machine

Waldron Mechanical Festooning for Economical Air Drying



Waldron Closed Front Embossing Machine With Inking Attachment



Machines Designed And Built For

the exacting requirements of the modern advanced methods in paper converting

Waldron machinery has been one of the chief factors in building the paper converting industry from its inception. And for over a hundred years, Waldron engineering has kept in step with the industry's constant advance. To Waldron machine design and construction must be given a large share of the credit for many of the outstanding present day developments in processing and production.

With new products and new processed effects constantly being considered, it is natural that Waldron engineers are so often consulted regarding machinery requirements. Waldron's century of experience and knowledge in this field has often assisted plant executives to prevent huge waste of time and money in the planning of their production, processing and equipment.

"If Its For Paper Converting—Consult Waldron"

IS ALWAYS A STANDING INVITATION TO THE INDUSTRY

Use The Advisory Service of Our Converting Specialists. Helpful data and technical information is available through our engineering service department.

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WALDRON

Paper Converting Machinery

Paper Demand More Active in Philadelphia

Fine Paper Market Is Exhibiting Strong Undertone — All Better Grades of Book Papers, Writing Papers, Covers and Sulphite Specialties In Excellent Request—Wrapping Paper Orders Accumulating at Mills—Kraft Paper Operations Are Broadening

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 7, 1929.—Quite cheering to the local paper dealers is the turn for betterment which has come into the paper market the past fortnight, with every evidence that the improvement will continue. Those merchants who make volume orders their specialty are more active, as contract buying for the last quarter begins with October. Distributors who make book papers their featured grades are exceptionally optimistic. This improvement in the book paper market extends to the coated grades as well. Fancy and higher priced writing papers show big improvement. This belated activity in the better grades of writing paper is a hopeful sign for the fine paper manufacturers, who have been keeping production at full speed. Mill representatives report good buying in all better grades of book papers, writing papers, covers and sulphite specialties. Manufacturers of wrapping paper report steady improvement in the past fortnight with growing orders accumulating at the mills. Traveling representatives for the kraft mills report broadening operations as business is steadily drifting to the mills in both northern and southern manufacturing centers. Specialties continue active among the paper distributors who are creating their own sources of consumption for lines not normally carried in quantity in the more prominent mills.

Unlike the paper distribution trade, paper stock, and other raw material wholesalers, report dragginess and spotty business, with the mills confining orders to needs of the moment. No changes are made, however, in the prices of paper stock, which continue low for the cheaper grades and steady and higher for the better class of stocks. Little of the better grades of stock have been accumulating. Although the market is narrow, there is use for all available supplies of book papers, writings, ledgers, and new shavings, with very little of these grades coming into the hands of the wholesalers. Common stocks are plentiful and are more freely offered although the mills consume but a few car loads at a time, confining purchases to needs of the immediate future rather than for stocking.

Wholesale Paper Stock Dealers To Meet

As the wholesalers of paper stock drift along, there is opportunity for the quarterly session offered in the respite from business and so a meeting has been arranged to take place Thursday evening, October 10, to be held at the Hotel Lorraine, Broad street, when a dinner will form the social side of the gathering. There will be the usual routine business transactions, with President Thomas A. Kenny and Secretary William J. McGarity, Sr., of the Penn Paper and Stock Company reporting on the routine activities of his organization. The meeting will bring together the various branches of the industry comprising the Philadelphia Wholesale Waste Merchants Association, including the paper stock, rag, waste, rubber and metal dealers.

McDowell Paper Mills Under Expansion

Further modernizing and expansion of business has again placed the McDowell Paper Mills in the hands of the electrical contractors and builders, as the head of the firm, Charles McDowell, returns to his desk after a vacation spent in the Maine resort cruising along the coast in the handsome speed boat of Colonel Charles Eisenlohr—*The Traumererie*—as his guest on the cruise from the Maine Coast to the Chesepeake Bay. The mills are now having three additional General Electric Motors installed on the Jordans for greater efficiency in operation and the laboratory is being enlarged so that entire control of all instruments throughout the plant are centered here in order to insure uniformity of production of the various products manufactured by the McDowell Mills, including glassines, grease proof papers, and fancy wrappings. The McDowell Mill, having passed the century mark of history in the Pennsylvania paper making industry, and being among the oldest mills in this section, have throughout the past few years and since post war days been entirely renovated and modernized so that production is conducted along up-to-date lines with all efficiency devices in electrical appliances installed to enable the firm to handle all orders with speed and to give the best possible results in high grade products and methods of manufacture of both raw materials and the finished papers.

A. B. Kehr Travels for Paramount Paper Products Co.

A. B. Kehr, who is secretary for the Paramount Paper Products Company, Inc., and general sales manager of the company, is now traveling over the nation as representative for the local manufacturers of a fine line of glassine bags of all grades and sizes in printed and unprinted designs. The Paramount company, located at 3rd and Callowhill streets, is producing these bags in all sizes from 1 inch to 15 inches in width and from 2 inches to 22 inches in length and has recently added more equipment to take care of expanding business. The Paramount Paper Products Company is also exclusive distributor for the Parafan, the newest of bakery bags, produced of a paper that has great similarity to glassine and is extra strong and elastic. These are taken on the road by the traveling representative. Other officers of the company who look after the home interests of the concern are President Nathan D. Isen and David Back, its treasurer.

Local Paper Dealers at Direct Mail Convention

Philadelphia paper dealers who will be represented at the convention of the Direct Mail Advertisers to be held in Claveland, O., this month at the Statler Hotel, are the A. M. Collins Manufacturing Company, 1518 Walnut street, and the D. L. Ward Company, 28 South 6th street. The A. M. Collins Manufacturing Company will have its own booth, devoted to an exhibition of three new paper lines of its own marks. They are the Moderne book papers and Moderne cover papers to match and the Laidtone brochure with the newest colors to be added to the Castilian cover papers. The booth will be under management of H. S. Foster, advertising manager of the company.

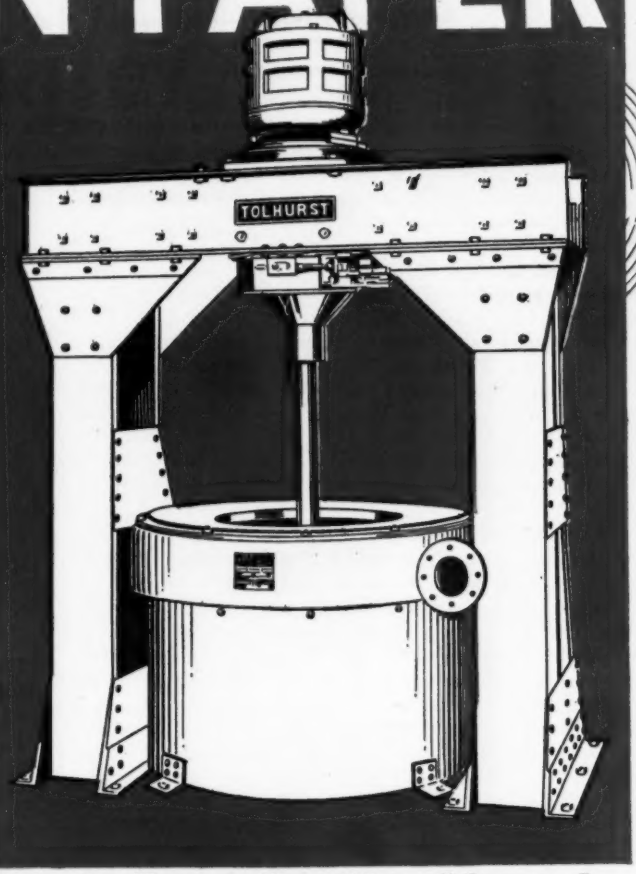
The D. L. Ward Company will feature an exhibition of the Direct Mail Leaders Displays, which are assembled from all parts of the nation as the year's best specimens of direct mail advertising put out by prominent concerns and notable for their uniqueness, excellency in designs and printing, and other technical points The D. L. Ward Company has been making these displays its particular feature over a period of years and has been sending them to various paper houses throughout each year for exhibition purposes. The exhibit at the Direct Mail Convention will represent the group for 1929, comprising matter that was sent out last year.

Cherry River Paper Co. Improves Power Service

With the installation of a high powered boiler to the plant of the Cherry River Paper Company at Richwood, Va., the paper manufacturing concern is provided with adequate units to enable the expansion of production needed for its growing needs for manufacture of paper specialties in both bleached and unbleached sulphites. The new boiler is of high powered and speed type which furnishes increased energy for operation of the plant and will supplement those already installed. Clark H. Morian, general sales manager of the Cherry River Paper Company, will journey to Richwood this week to inspect the new units and to make a survey of the mills following its completion.

CLEAN PAPER

THE TOLHURST CENTRIFUGAL DOES WHAT A MILE OF RIFFLERS CANNOT DO . . . IT TAKES ALL IMPURITIES OUT OF THE STUFF!



DESIGNED AND BUILT BY SPECIALISTS

This machine is made under license of the Centrifugal Engineering and Patents Corporation, holders of the Erkenmeier patents.

The Tolhurst Centrifugal by multiplying the force of gravity by hundreds naturally does that which a sand trap cannot do.

TOLHURST, in this machine, brings to the paper industry the same specialized knowledge of centrifugal engineering that has made the name TOLHURST a synonym for excellence in the chemical, textile and other industries.

Write for the Tolhurst Bulletin which describes this machine, its economies, production advantages and profit possibilities.

TOLHURST MACHINE WORKS, INC.
TROY, N. Y.

New York Office: 30 Church Street
Chicago Office: 8 So. Dearborn Street

Ontario Paper Mills Maintaining Production

Manufacturers of Book Papers Particularly Active With Orders Booked Well Ahead—Coated Paper Makers Busier Than For Some Time Past—Increasing Activity Experienced in Coarse Paper Plants—Pulpwood Market More Buoyant With Prices Better

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 7, 1929.—Although only a moderate volume of business is passing in wholesale paper circles in Toronto there has been a gradual improvement in conditions since the vacation period started to draw to a close. Paper distributors report rather cautious buying on the part of the consumers and sales of large dimension are not a feature of conditions. In a general way, however, the paper market is in a strong position and while carload sales are none too frequent the volume is being pretty well kept up by numerous smaller sales. Fine paper lines, such as book, writings and ledgers are meeting with fair sales from various sources as instance the publishing and black book trades which are making good requisitions for stock, while the catalog and direct mail paper sales sources are using considerable stock in the fine paper line. There is every indication that the fall months holds good promise of greatly increased sales. Printers and lithographers are fairly busy and although not buying heavily they are gradually increasing the size of their commitments.

Paper manufacturing activity is keeping up well. Book mills are particularly busy and have orders booked well ahead into the Fall. Coated paper mills are getting busier after a dropping off in tonnage during the summer months and a good Fall is forecast for this branch of the paper trade. The paper converting trade is in much better shape than it was a month or two past and the call for envelopes and general stationery lines is rapidly increasing in volume. Manufacturing stationers have been getting some good business from the schools which have started their Fall terms and while this is seasonal, the volume is a little heavier this year than last. Paper box factories are making good requisitions for box board and kindred lines which means that the board mills are fairly busy despite seeming over-production in this line. There promises to be an excellent demand this coming season for all the products of the paper box factories, especially papeteries which are now being sold for the Christmas trade.

Both manufacturers and distributors of coarse papers report gradually increasing activity in that department. Wrapping paper wholesalers say there is a tendency to increase the size of orders by buyers of wrapping and kraft lines and car load lots and five ton orders are not as infrequent as they were awhile back. Automobile tire manufacturers are placing car load lot orders for coarse paper in rolls for winding on tires and the furniture manufacturers are placing some nice business with the coarse paper distributors for the wrapping of furniture.

The one weak spot in the paper market in Ontario is that of paper bags. Low prices prevail throughout the trade owing to price cutting on the part of the wholesalers who seem to be unable to get together like other branches of the paper trade in their own interests, and as a result the paper bag market is very much upset, with considerable over-production. There is also outside competition to meet, for several United States firms are sending in bags to the Canadian market. With both home and foreign competition to contend with the paper bag industry is in a rather bad way,

While the bleached sulphite market is weak there is a corresponding strength in the unbleached section and a strong demand for the product. Ground wood pulp is rather scarce owing to the dry season and the shortage of water. The pulpwood market is picking up some, with demand fair and prices slightly better.

Times Proprietor on Pulpwood Industry

Difficulties met with in Canada's pulpwood industry will work themselves out if given sufficient time, according to the opinion which was expressed by Alolph S. Ochs, proprietor of the *New York Times*, who spent a few days in Ontario this week. In a discussion of the pulpwood question with Ottawa newspaper men, Mr. Ochs said: "Previously some of the producers took a narrow view of the industry. They ran prices up without regard to the future and gave no thought to demand. They kept prices up artifically, and as a natural consequence, there had to be an adjustment. These things generally right themselves if left to the general course of business." Turning to the tariff question, Mr. Ochs thought that Canada had no need to feel apprehensive. "The United States' best customer is Canada", he said. "We need the Dominion's natural products. We are most intimate in our commercial, human and social relations. Then you must remember that our President, Mr. Hoover, is a hard-headed business man. I don't think this tariff matter is one of serious concern to you. The tariff is always a local question, and each district views it from a different angle. There are so many conflicting interests that the question is always much aired everywhere."

Don Valley to Move Office

The head office of the Don Valley Paper Mills, Toronto, is shortly to be moved to the new building being constructed on University Avenue, Toronto, by Provincial Paper, Ltd. The Don Valley, who are manufacturers of cover stock, bristols, tag manilas and specialties, have just completed the installation of the Farnsworth system of drying, and have rebuilt the beater room, adding other equipment and improvements. The president of the concern, Norman Wainwright, states that the mill is now throughly equipped to handle the increased business that is being secured and that tonnage from now on will be considerably increased.

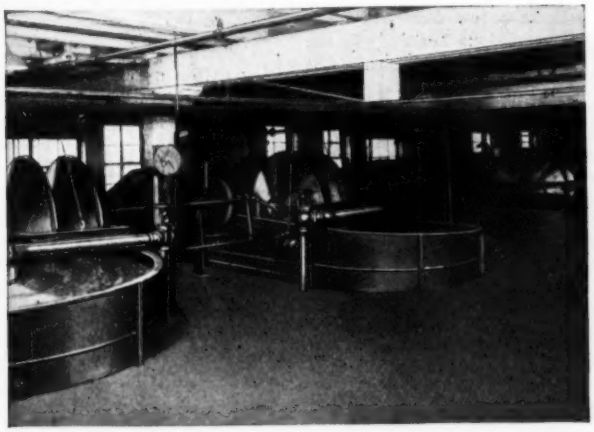
More Applications for Pulpwood Concession

Recent advices from Winnipeg conveys information that applications are being made for new allottments of pulpwood concessions by various companies operating along the Ontario border and in Northern Manitoba. The Manitoba Paper Company, Brown and Rutherford, and the International, expect to get new allottments of timber berths in the Lake Winnipeg district at a conference soon to be held in Winnipeg with the Hon. Charles Stewart, Minister of the Interior, and pulpwood representatives. Brown and Rutherford have applied for all berths covering forty townships convenient to the company's Birch Point mills, but this is within the limits of the Manitoba Paper Company territory where they were guaranteed six million cords by the Government. Available supplies are getting remote from transportation sources.

Women Pulpwood Operators Are Busy

Mrs. Kate Bowerman, Dorion, Ont., woman pulpwood operator in the Thunder Bay district, reports that she took out 200 cords of pulpwood last winter and that during the coming winter she expects to take out about 400 cords. "I am doing fairly well and I like the work fine," she writes to the PAPER TRADE JOURNAL. "I opened the camps about three weeks ago. Cutting and peeling of balsam and spruce is under way. There seems to be quite a demand for balsam and poplar this season. Last season I drove a

Investigate!



Siphon Disc Washers on Dilts New Type Beating Engines
at the plant of West Jersey Paper Mfg. Co., Camden, N. J.

Siphon Disc Washers in new type beaters operate on a new principle. Dirty water is removed by siphon action. There are no buckets or dippers, no gears or sloppy discharge spouts, no power used in lifting the water. A friction clutch pulley is used for starting and stopping.

The narrow cone-shaped discs permit submerging the washer discs close to the bottom of the tub so that the stock in the bottom of the tub is washed as well as the stock on the surface. The large area of the discs provides greater screening surface in contact with the stock.

The rate of washing may be varied at will. The power required to operate the washers is negligible. Built in single, double and triple discs, these washers solve many washing problems, increase production on stocks which are slow to wash and provide no operating difficulties. They are simple in construction. Brass and bronze discharge outlet parts and the absence of wrought iron and steel in the construction of the washer eliminate many troubles from corrosion, lime deposits, etc.

Used in connection with the New Type Beating Engines very satisfactory savings of time, power and beater room costs are effected. Reduce beating time, improve quality, save floor space and labor by installing modern equipment.

Full information gladly furnished upon request.

DILTS MACHINE WORKS, Inc.
Fulton, N. Y.

"Your Paper Is Made In Your Beaters"

team of horses and have been doing plowing and seeding during the spring and summer. Mrs. McIntyre, my neighbor, has been very busy taking out pulpwood and is at the present time cutting balsam and spruce. The price of pulpwood has advanced a little; we are now getting $9.50 per cord."

Strike Averted at Paper Plant

But for the suggestion of the Hon. Peter Heenan, Minister of Labor, who passed through Fort William, Ont., on his way to Ottawa, last week, it is probable that a strike of 225 paper makers at the Great Lakes Paper Company's plant at Fort William would now be in effect. On Monday night it was unanimously decided to strike, owing to a dispute on the matter of the wage schedule. Four representatives of the paper makers organizations went west to Savanne and returned with the Minister of Labor who suggested that for the present the matter be left to arbitration. It is known that Mr. Heenan will be back in a few days and he is likely to take a hand in conciliatory negotiations himself. In the meantime the strike is suspended and it is not thought likely it will materialize.

Notes and Jottings of the Trade

R. W. Lowman, of the Toronto office of the Hodge-Sherriff Paper Company, sales agents for Wayagamack kraft paper, is spending some days at the company's office in Montreal.

L. G. Stone, of the Toronto office of Howard Smith Paper Mills, Ltd., is making a name for himself as a member of the Argonaut football team in Toronto, with whom he has been doing good work this season so far.

H. F. Goldsbrough, in charge of the Toronto office of the Hodge-Sherriff Paper Company, was away from his desk in the Federal Building during the past week, he having been called to serve on the jury at the Assizes.

Fred Woods, superintendent of the woods department of the Abitibi Power and Paper Company, Sudbury, was a caller at the Toronto office of the company last week.

A raft consisting of 3,800 cords of pulpwood belonging to the Russell Timber Company, Port Arthur, Ont., was dropped by the tug *A. B. Conmee,* owing to the stress of weather recently at the southwestern end of Isle Royal, while being towed to Ashland, Wis. On releasing the tow the tug returned to Port Arthur for shelter and to report the next morning after a wireless message had been received from a passing steamer giving the location of the drifting raft as about thirty miles from the Rock of Ages light. The tug set out to locate the raft but was able to find only drift wood, sufficient to indicate that the raft, valued at $45,000, had been pretty well dissipated on Lake Superior. At last reports the tug was making another inspection with the hope of finding the containing booms which are of considerable value.

E. P. Cameron, administrative officer of the Canadian Pulp and Paper Association, is on a five weeks' visit to Vancouver and other British Columbian points, to consult with the British Columbian Division of Forests and Products on the condition and extension of pulp and paper interests on the Pacific Coast.

The Thunder Bay Paper Company, Ltd., Port Arthur, Ont., is the latest paper manufacturing concern to be admitted to membership in the Canadian Pulp and Paper Association. The Eastern Paper and Felt Mills Corporation, Quebec, is also a new member.

Louis Lemeiux has been appointed permanent secretary of the Paperboard section of the Canadian Pulp and Paper Association and will devote the major portion of his time to the duties of that office, retaining, however, an advisory interest in the customs contact the association has with the Canadian Customs Department.

C. E. Braun has resigned as plant superintendent of Vancouver Kraft Mills, Port Mellon, Howe Sound, B. C., and a successor has not yet been named. Construction work on the plant is at a standstill for the moment as a result of reported changes in plans. The mill is owned by F. W. Leadbeatter, who has extensive interests in pulp and paper projects in Washington and Oregon, and it is understood that a new statement of policy will be made by him when he returns to Vancouver.

Following a brief vacation in the Muskoka region of Ontario, George Carruthers, head of the Interlake Tissue Mills, has returned to his desk at the head office in Toronto.

Columbia Paper Products Co. Formed

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., September 30, 1929.—The Columbia Paper Box Company and the Columbia Tag Company, Portland, have merged and formed a company called the Columbia Paper Products Company, which plans to embark upon an expansion program. Articles of incorporation have been filed by George G. Guild, who has been head of the two companies for some time, Wm. D. Bennett and Donald H. Guild. Capital is 2,000 shares common stock, no par value, 500 shares preferred stock $100 each.

Construction is to be started at once on a second story extension to the present building of the former Columbia Box Company, the addition to be 50x200 feet.

The immediate expansion will add about $2,000 a month to the company's payroll which now averages about $1,600 weekly. The existing plant and equipment is valued at $300,000. Box board and several other paper products will be added to the production lines.

A little more than a month ago the factory began manufacturing "set-up" boxes for candy. Previous operations had been concerned with making folded or "knocked down" paper boxes.

Mr. Guild is well known in civic circles outside his personal business. He served for three years as president of the Oregon Manufacturers Association.

Merges with VanReed Paper Co.

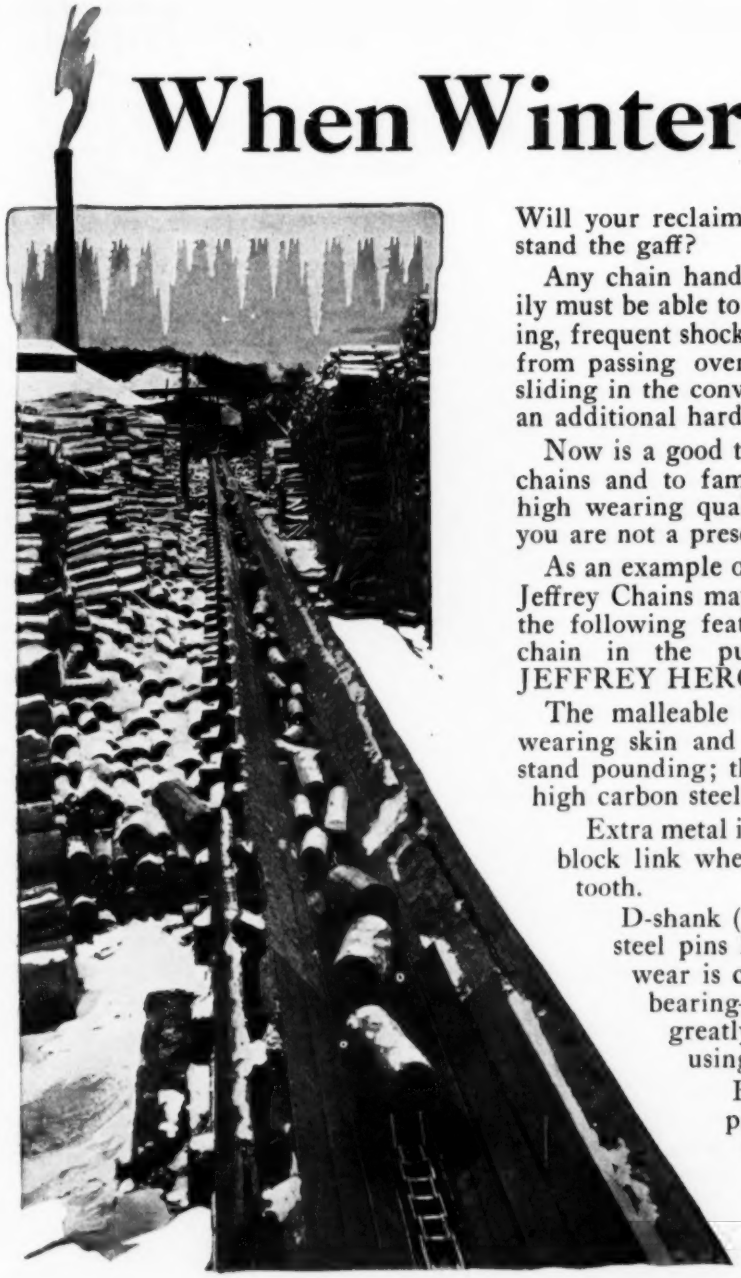
The stock of the VanReed Paper Company, of Reading, Pa., has been purchased by the Garrett-Buchanan Paper Company of Philadelphia, according to an announcement made last week by President Morgan H. Thomas, of the Philadelphia concern. The transaction of purchase of the stock of the Reading house involved a sum estimated at $200,000. Under the sale arrangement has been made to continue the VanReed Paper Company under its own management and with its former officers, C. Raymond VanReed, C. R. Smith, and Isaac J. Zinn, continuing to conduct its affairs as in the past. The new subsidiary of the Garrett-Buchanan Company manufactures stationery and wrapping papers and aside from adding additional lines of merchandise for Philadelphia houses will be used to increase area of distribution. The VanReed business dates back to 1747 and was the first paper mill in Reading founded by Jon VanReed, who learned the paper making trade in Holland. About ten years ago it was acquired by Walter Shuttleworth, of the former Philadelphia firm of Shuttleworth, Hogg and Mathers now dissolved. Later it was returned to its previous owners, the VanReed interests, and conducted by them until the present transaction.

George Tait to be Examined by Referee

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 5, 1929.—Justice Christopher Heffernan has appointed C. E. Fitzgerald, of this city, a referee to examine George Tait before trial of an action brought by the Imperial Paper and Color Corporation against the former president for an accounting of certain sums received by him in dividends on stock of the Idel Cut-Out Border Company. The case is scheduled for trail at the next term of Supreme Court in this city and Mr. Tait is to be examined before that time. The Border company, operated by wall paper manufacturers, owned a patent on machines which cut out wall paper borders and performed work formerly done by hand. The corporation contends that the sum received by Mr. Tait was as a matter of law impressed with a trust in favor of the corporation. The defendant contends that the dividends were his personal property.

When Winter Comes



Will your reclaiming conveyors be ready to stand the gaff?

Any chain handling pulpwood satisfactorily must be able to withstand constant pounding, frequent shocks, and wearing action both from passing over the sprockets and from sliding in the conveyor trough. Winter adds an additional hardship on the chain.

Now is a good time to replace badly worn chains and to familiarize yourself with the high wearing qualities of Jeffrey Chains if you are not a present user of them.

As an example of the care used in building Jeffrey Chains may we call your attention to the following features of the most popular chain in the pulp and paper industry, JEFFREY HERCULES CHAIN.

The malleable block links have a hard wearing skin and a tough interior to withstand pounding; the strap links are made of high carbon steel.

Extra metal is added to the barrel of the block link where it engages the sprocket tooth.

D-shank (full diameter) high carbon steel pins lock in the strap link—all wear is confined to long block link bearing—strength of this chain is greatly increased over chains using milled pins.

Each Jeffrey Chain is completely described in our Chain Catalog No. 416-B. Your request for a copy will be given immediate attention.

The Jeffrey Manufacturing Company
931-99 North Fourth St., Columbus, Ohio

New York, Buffalo, Utica, Rochester, N. Y. — Philadelphia, Pittsburgh, Scranton, Pa., Boston — Cleveland, Cincinnati, Chicago, Detroit — Milwaukee, St. Louis, Denver, Salt Lake City — Charleston, W. Va., Atlanta, Birmingham, Houston

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JEFFREY
MATERIAL HANDLING EQUIPMENT

Jeffrey Products for Pulp & Paper Mills

- Elevators
- Conveyors
- Portable Loaders
- Coal and Ashes Handling Equipment
- Skip Hoists
- Chains and Attachments
- Sprocket Wheels—Gears
- Crushers—Pulverizers
- Locomotives
- Ventilation Fans

Makers of Greene Freeness Tester Enjoined

In 1927 at the annual meeting of the Technical Association of the Pulp and Paper Industry, held at the Waldorf-Astoria Hotel, it was proposed that a standard freeness tester should be adopted, so that freeness in terms could be universally understood. At that time the Greene Tester was proposed and it was pointed out that it was thought to be an infringement upon the Schopper Riegler patent. It was therefore decided to delay the adoption of any standard instrument at that time until the patent question was settled. It was at that time that the Foreign Paper Mills, Inc., of 72 Duane street, New York, representatives in the United States and Canada for Louis Schopper, promised the association that they would try the case in the courts and push the matter to conclusion as fast as possible.

On September 17 the United States District Court in Boston handed down the decision that the Greene Freeness Tester is an infringement of the Riegler patent under which the Schopper Beating Tester is made and has ordered that the Star Brass Manufacturing Company, makers of the Greene Tester, be enjoined from further manufacture and sale of the Greene Tester and account for damages resulting from its infringement. The opinion of the court follows:

"This is a suit for infringement of patent to Riegler No. 1,193,-613 dated August 8, 1916, application filed September 8, 1913. It was heard in open court on oral and documentary evidence. The plaintiff's title is admitted. The facts are as follows: The stock of which paper is made undergoes in the paper-making machine a process called "beating." The effect of beating, carried to the proper point, is to make the paper much stronger; but if carried too far weakness results. It is, therefore, necessary to stop the beating at the right stage. As the appearance of the stock furnishes no guide on this point, the beating was formerly controlled by mere guesswork, or by the feeling of it, or by dipping out stock from time to time and making test sheets of paper,—methods which were far from satisfactory. In 1910 Skark in Germany published in *Der Papier Fabricant*, a trade journal, an article on the relation between the condition of the pulp as respects beating,—its "fineness" so called,—and the rapidity with which the water of suspension drained from it, that the finer the pulp, the slower the water left it; and he published sketches of a simple machine for utilizing this relation in the manufacture of paper. The rate at which the pulp loses its water of suspension is called the "freeness" of the stock.

"This discovery of the relation between freeness and beating opened the way to much simpler methods of determining when the beating had been carried far enough. Freeness is easily tested by pouring the liquid stock on a screen, generally of fine copper wires. The stock being over ninety-nine per cent water, there is at first a rush of water through the screen. As the pulp fibres accumulate thereon, they clog the passage of water. The last of the water drips slowly from the matted pulp. All this was well understood in the art before the application for the Riegler patent. Suitable instruments had been devised to take advantage of it in the operation of paper-making machines. For instance, Skark in 1911 published a description of a simple machine which made a graphic curve of the rate at which the water left the stock, one side being time and the other, units of flow.

"Riegler was the first to see that it was possible to get all necessary information about the condition of the stock for the purpose stated in a much simpler way, by merely separating the freeness water, which came through the screen when the stock was first poured upon it, from that which slowly drained from the pulp,—the coarser the stock, the greater the relative amount of freeness water, and vice versa. He, therefore, arranged below the screen a receptacle which had a small outlet at the bottom and a larger outlet on the side higher up. When stock is first poured into this tester the flow of water greatly exceeds the capacity of the bottom outlet. The water rapidly fills the container to the side outlet and escapes thereby. As the fibres accumulate on the strainer, the flow is slowed down to an amount which can be taken care of by the bottom outlet. By collecting separately the freeness water which passed through the side outlet and the other water which passed through the bottom outlet, Riegler having calibrated the instrument was able to determine the condition of the stock with respect to freeness, and thereby with respect to beating. His method which eliminates the troublesome element of timing the flow proved extremely simple, quick and serviceable, well adapted for use in paper-making mills. In practical use it has superseded all others. It originated with him. There is no suggestion of it in the prior art. His patent is a pioneer patent of much merit in the narrow field to which it relates.

"The defendant's apparatus unquestionably embodies the Riegler principle and is designed on substantially the same lines as the Riegler apparatus. There is however, this difference between them. In the Riegler apparatus the water from each outlet is collected in separate vessels, and the stock is judged by the relative amount in each; while in the defendant's apparatus only the water from the larger opening,—the freeness water,—is collected, and the determination is made by the proportion between it and the total amount of stock which went into the hopper. In other words Riegler does not measure the amount of stock which goes into the hopper, but gets his results by comparing the amounts of water which pass through the two openings, while the defendants measure the amount of stock put into the hopper and compare it with the amount of water which passes through one opening. The underlying idea is precisely the same; and the Riegler apparatus can be used in this way without any change.

"The difficulty with the case is due to the fact that Riegler seems not to have thought of using his tester in this latter way. His patent seems to have been drawn up on the supposition that the water from both outlets would be collected and the amounts compared. Some of the claims, certainly,—the defendant says all of them,—include as an element means for collecting (in the sense of gathering together for the purpose of measurement) the water from *both* outlets. This is true of the second claim which includes *"independent collecting vessels"*, of the fifth which includes *"a collecting vessel in communication each of said outlets,"* and the sixth which includes *"independent collecting vessels for each outlet."* However meritorious a patent may be, elements explicitly included in a claim can not be ignored. As was said in American Rolled Gold Leaf vs Coo Manufacturing Company 212 R.R. 720,-724 an infringement suit is not a re-issue proceeding. Even under the most liberal rules of construction, I do not think that a waste pipe can be regarded as a "vessel." These claims are not infringed.

"Other claims are however, more broadly drawn. In the first, the corresponding element is stated as *"independent means for collecting the constituents passing from each of the outlets of the bottom wall of the container,"* in the third, as *"a collection means in communication with said outlets,"* and in the seventh, *"collecting means arranged below said outlets."*

"In these latter claims there is no reference to collection *"vessels."* The broader expression "collecting means" was suggested by the examiner in his communication of October 15, 1915. The claims which include it are to be read with this difference in mind. In them this element can I think, fairly be construed, in accordance with the obvious intention of the patent, as means for keeping the water from the two outlets separate so that the amounts can be measured as far as necessary for the purpose of the test. There is nothing in the proceedings in the Patent Office which precludes such a construction. The merits of this case are entirely

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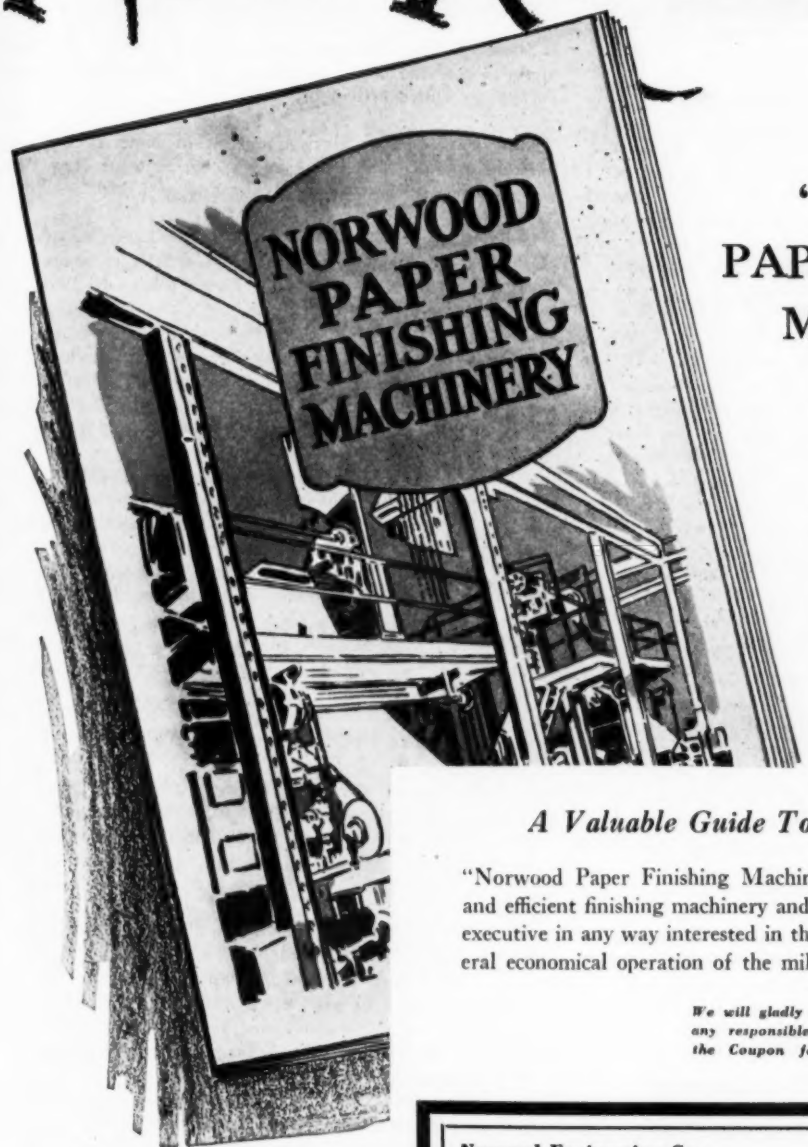

"NORWOOD PAPER FINISHING MACHINERY"

THE enthusiasm with which this new Norwood Reference Book of Paper Finishing Machinery has been received impels us to again offer it through the trade press in order that all interested executives may have the opportunity of receiving a copy. This reference book covers a comprehensive line of modern and efficient Paper Finishing Machinery. It has forty-four pages, with thirty-five illustrations.

A Valuable Guide To Finishing Machinery

"Norwood Paper Finishing Machinery" is a valuable guide to modern and efficient finishing machinery and should be in the hands of every mill executive in any way interested in the Finishing Department and the general economical operation of the mill.

We will gladly send a copy to any responsible executive. Use the Coupon for convenience.

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PTJ2

with the plaintiff; and it is a familiar and established principle that the claim of a meritorious patent are, if possible, to be so construed as to protect the inventor. Eibel Process Company vs Minn. & Ont. Paper Company 201 U. S. 45, 63. In the Gold Leaf Company case above referred to the word "automatically" was used in every claim in suit in connection with a certain operation of the machine. In the defendant's machine this operation was performed by hand. It was held that "automatically" could not be construed to cover manual operation. The principle above stated was fully recognized in that decision.

"Let there be a decree that claims one, three, four and seven are each valid and infringed, and for an injunction and accounting; and that the remaining claims are not infringed. Costs to the plaintiff."

White & Wyckoff Co. 40 Years Old

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., September 24, 1929.—The White & Wyckoff Company, manufacturing stationers, are this week sending out a folder in recognition of its 40th anniversary. It is printed in gold red and black on heavy coated paper and consists of eight pages of ordinary magazine size. Portraits of the leading officers and the representatives of the concern and view of the exterior and interior of the Company's building accompany the text which sketches its growth and its present condition.

The Company was known at its start as the Smith & White Company. J. Louis Wyckoff joined the company in 1891 his attention being centered on the sales end of the business in which he was very successful. In 1893 Mr. Smith's interest was bought by the other two men. The floor space of the concern now covers over seven acres and they employ over 900 people.

The officers are as follows: President and General Manager J. Louis Wyckoff, Treasurer and Chairman of the Board, Edward N. White; Vice President and General Manager, George R. Burkhardt; Vice President in charge of production, Henry J. Toepfert; Vice president and manager of Chicago Office, Peter Peterson; Assistant Treasurer and Comptroller, Forrest R. Gee; Manager Davenport Division, Harry F. Burkhardt; Director of Sales Promotion, Albert H. Sampson; General Superintendent, Paul W. Bidwell.

Sensenbrenner Heads Golf Club

F. J. Sensenbrenner, president of the Kimberly-Clark Corporation, Neenah, Wis., has been honored with election as president of the North Shore Golf Club. The vice president is M. A. Wertheimer, of the Thilmany Pulp and Paper Company, Kaukauna, Wis., and John N. Bergstrom, of the Bergstrom Paper Company, Neenah, Wis., is secretary-treasurer. Others on the board of directors include Ernest Mahler, vice president of the Kimberly-Clark Corporation, Mowry Smith, of the Menasha Wooden Ware Company, Kenneth Dickinson, of Appleton, Wis., D. K. Brown, of the Neenah Paper Company, and C. B. Clark and Jack Kimberly, of Neenah. The club was originated this summer and is building an 18-hole golf course on the north shore of Lake Winnebago, about five miles from Appleton and Neenah.

G. A. Whitney Gives $25,000 to Lawrence

George A. Whiting, president of the George A. Whiting Paper Company, Menasha, Wis., made a gift of $25,000 to Lawrence College, Appleton, Wis., last week. The money will be added to the endowments used for the cost of instruction in the college. Mr. Whiting previously gave the college sufficient money to build a 14-acre athletic field and field house, which is named after him.

James W. Sewall in Alaska

OLD TOWN, Me., October 9, 1929.—James W. Sewall, consulting forester, of Old Town, is making a trip through Alaska, British Columbia, Washington and Oregon.

New York Trade Jottings

George M. McKee, president of the Port Alfred Pulp and Paper Corporation, was a prominent New York visitor last week.

* * *

W. G. Mitchell, of Price Bros. & Co., Ltd., Quebec, spent a few days in New York last week.

* * *

Fall meetings of the National Waste Material Dealers Association are to be held at the Astor Hotel, New York, beginning October 22.

* * *

Standard Tag Company have removed from 76 Beekman street to new and larger quarters at 116 Duane street, where they occupy the entire fifth floor.

* * *

Mott Haven Paper Stock Company, of New York City, has been incorporated under the laws of the State of New York, to deal in paper stock, with a capitalization of $3,000.

* * *

Union Card and Paper Company, of 45 Beekman street, New York, has been appointed by the Standard Paper Manufacturing Company as a New York distributor for Two-Text coated bond.

* * *

Bertram Blake Paper Company, Inc., of 225 Varick street, and Butler Paper Company, Inc., of 460 West 34th street, have been merged under the name of Blake-Butler Paper Company, Inc., with headquarters at 225 Varick street, New York.

* * *

D. Benedetto, Inc., dealers in paper mill supplies, has purchased the property at 65-69 Rutgers Slip, New York. Extensive alterations and improvements will be made to make it suitable for localizing the four Benedetto plants into one unit.

* * *

The regular weekly meeting and luncheon of the New York Division of the Salesmen's Association of the Paper Industry was cancelled this week in order to give the members an opportunity to attend the Fall meeting of the association in Chicago last Tuesday.

Taggart Production Records Shattered

OSWEGO, N. Y., October 5, 1929.—All previous production records made at the plant of the Taggart Paper and Bag Corporation were shattered on Wednesday when the bag department turned out and made ready for shipment more than 400,000 bags for cement. All of the bags have the automatic valve and the production bettered by more than 100,000 the estimated daily output when the bag factory was placed in operation about a year ago. New machinery speeding up production in the bag department has been added constantly as well as a new printing press and production has been steadily increased under the capable direction of Hayes Lafaive, plant manager.

To Represent Robertson Paper Box Co.

The Robertson Paper Box Company of Montville, Conn., has appointed H. W. du Moulin as New York salesman to assist R. Houlahan, its New York representative, with offices at 101 Park avenue.

Mr. du Moulin was formerly sales manager, Corrugated Division, of the Rochester Folding Box Company, and brings to his new position a wealth of experience and knowledge of the folding box industry. His territory will be the metropolitan district.

The Robertson Paper Box Company manufactures all kinds of folding paper boxes for packing and display purposes, and maintains its own paper and board mill at the plant in Montville, Conn.

"M & W" Rotary Screen

with important new features for "ideal" screening

"M & W" Rotary Screens are sold only on condition that they meet with entire satisfaction of the buyer. 45 years' paper machine building experience is behind our guarantee.

THESE SCREENS ARE HIGHLY RECOMMENDED FOR CLEAN PAPER BY LEADING PAPER MAKERS.

TO PAPER MILL MANAGER:

Here is a list—compare it with your mental picture of what you would consider "ideal" screening for your paper mill—

1. **Quick removal of dirt.**
2. **Large capacity.**
3. **Minimum power, vibration and wear.**
4. **No possibility of lumps, etc., working into screened stock.**
5. **No pockets or dead spots in vat or cylinder.**
6. **Dependable lubrication.**
7. **No possibility of oil or grease getting into stock.**
8. **Quick, visible washing up and oiling.**
9. **Screen plate slots always open.**
10. **Quick changing of screen plates.**
11. **No shutdowns of paper machines due to screen repairs.**

Or, to put it another way—

(A) ability to produce clean stock continuously.
(B) quick changeover when wanted
(C) reliable operation at low cost

Every one of these points has been considered in building the "M & W" Rotary Screens now being placed on the market. Recent improvements are fully covered by United States and Foreign Patents.

Write for Screen Booklet

THE MOORE & WHITE CO.
PHILADELPHIA, PA.
N. PHILA. STA. PENNA. R.R.
PAPER MILL MACHINERY

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Piermont, N. Y.—The Robert Gair Company, 420 Lexington avenue, New York, manufacturer of corrugated paper and fiber boxes and containers, has plans under way for a new addition to mill at Piermont, consisting of four-story reinforced-concrete unit, 200 x 500 feet reported to cost in excess of $600,000, with machinery. Structures will be equipped for expansion in box-board mill and fabricating department.

Long Island City, N. Y.—The American Seal Kap Corporation, 11-05 44th Drive, Long Island City, manufacturer of card-board milk bottle caps and kindred products, has purchased an adjoining factory, totaling about 20,000 square feet of floor space, on Nott avenue, near Van Alst street, and will use for expansion. It is understood that structure will be improved and equipment installed at early date; large increase in present out-put will be developed.

St. Helens, Ore.—The Fir-Tex Insulating Board Company, Pacific Building, Portland, Ore., is perfecting arrangements for early construction of new plant at St. Helens, for which general contract recently was let to the J. F. Shea Company, Henry Building, Portland, and site surveys are now under way. The plant will consist of a group of seven one-story units, including digester plant, 47 x 160 feet; shredder mill, 40 x 171 feet; board-forming mill, 50 x 144 feet; drying mill, 48 x 528 feet; finishing mill and storage plant, 90 x 300 feet; two-story laboratory and office, 48 x 128 feet; and boiler plant, 44 x 85 feet. Equipment will be installed for large capacity. Entire project is reported to cost close to $2,000,000, with machinery. A. E. Millington is vice-president and general manager.

Big Island, Va.—The Bedford Pulp and Paper Company, Big Island, with headquarters in the Mutual Building, Richmond, Va., has approved plans for a new power plant at mill, reported to cost more than $150,000, with equipment. Contract for steel frame superstructure has been awarded to the Virginia Bridge and Iron Works, Inc., Roanoke, Va., and work will be placed under way at once. Milton E. Marcuse is president.

Reading, Pa.—The Garrett-Buchanan Company, 18 South Sixth street, Philadelphia, Pa., manufacturer of paper goods, has concluded negotiations for purchase of Van Reed Paper Company, Reading, specializing in heavy wrapping papers, stationery, etc., and will consolidate with organization. It is proposed to continue Van Reed company under present name at same location, and expansion program will be carried out for increased output. It is understood that a consideration of about $200,000 was given for the property. C. Raymond Van Reed and C. R. Smith will continue to head the Reading plant.

Everett, Wash.—The Everett Pulp and Paper Company, Everett, is said to be planning the construction of a machine and mechanical shop, with woodworking department, reported to cost about $25,000, with equipment. Company will also make extensive improvements to dock at the local mill, for increased shipping facilities.

North Bergen, N. J.—The Box Top Company, 568 Park avenue, West New York, N. J., has approved plans for a new plant unit on Thirty-ninth Street, North Bergen, and will proceed with superstructure at an early date. It will be two-story and basement, brick and steel, reported to cost about $65,000, with equipment. General contract has been let to Bonanno Brothers, 1827 Bergen Turnpike, North Bergen.

Memphis, Tenn.—Plans have been completed by the Buckeye Cotton Oil Company, Gwynne Building, Cincinnati, Ohio, a subsidiary of the Proctor & Gamble Company, same address, for a paper pulp mill at Memphis where site has been selected on Raleigh road. It will consist of a one and three-story structure 50 x 420 feet, steel and reinforced-concrete, reported to cost close to $250,000, with equipment. Contract for steel frame superstructure has been awarded to the Virginia Bridge & Iron Company, Roanoke, Va. Robert & Co., Bona Allen Building, Atlanta, Ga., are architects and engineers.

Green Bay Wis.—The Fort Howard Paper Company, Green Bay, has awarded a contract to the Babcock & Wilcox Company, New York, for a watertube boiler for installation in power house at local paper mill; unit will have a capacity of 7,000 sq. ft. heating surface. Orders for auxiliary equipment will be placed at once.

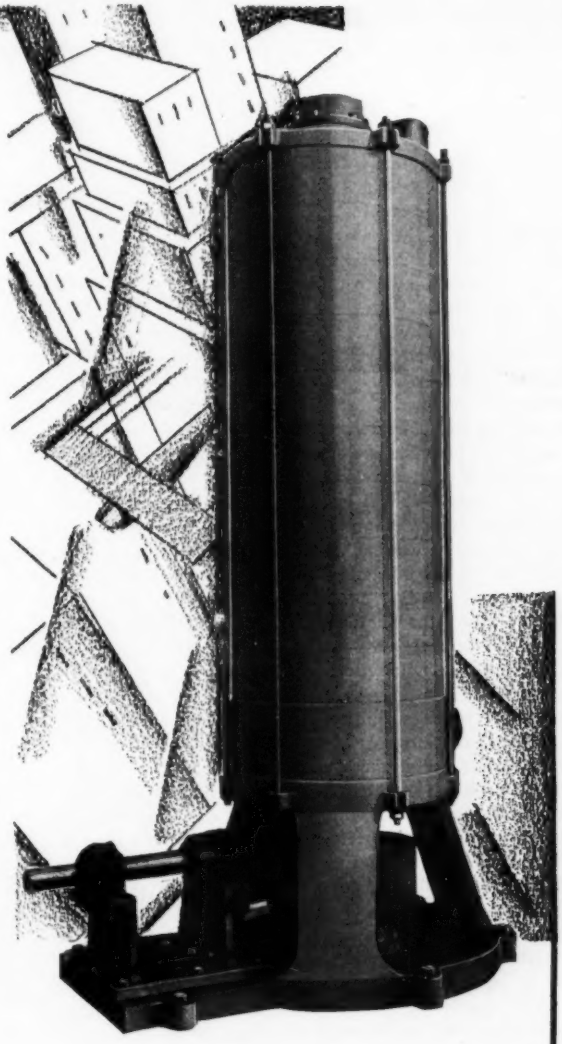
Oshkosh, Wis.—The Oshkosh Corrugated Box Company, Murdock and Harrison streets, manufacturer of corrugated paper boxes and containers, has plans under way for a new addition to mill for large increase in present output, to be two-story, reported to cost close to $200,000, with machinery. It is expected to ask bids on general contract early in November. E. A. Juul, Security Bank Building, Sheboygan, Wis., is architect.

Monroe, La.—The Brown Paper Mill Company has completed plans for increased water supply at its mill at West Monroe, to be used in connection with new mill units, now in progress, designed to double the capacity of the present plant. Contract has been let to Layne-Louisiana Company, Lake Charles, La., for installation of six new wells and necessary equipment, including pumping machinery, etc., to cost about $81,000. The capacity will be advanced from 5000 to 6000 barrells per day. Superstructure on new mill units is under way and work will be pushed to early completion. H. L. Brown is president.

Hoboken, N. J.—The Quality Paper Box Company, Inc., recently organized by Morris W. Kessler, 1021 Grand street, Hoboken, and associates, with capital of $25,000, is said to be arranging the early operation of a local plant for the manufacture of paper boxes and containers.

Colchester, Ill.—The Paper Utilities Corporation, 4911 Lincoln avenue, Chicago, Ill., is said to have plans under advise-

ABREAST *of the* TIMES



Never before have the demands for speed, for quality, for fast unceasing production in the industrial world been so exacting as they are today. The challenge of the pacemakers is the substance of current national thought. Speed is the keynote, quality the demand, and the necessity of reconciling the two is the big problem of the day.

The paper industry, in responding to the challenge of the times, has looked to the fundamentals of manufacture. This means that old standards, old methods, old machinery, must go. Methods that were based on the old demands, machinery that was built to answer the challenge of another day, are hopelessly lost.

The Fritz Vertical Hydrator represents the modern trend. It is tuned to the times. It is an answer to the demands for speed, for quality, for production. It is for those in the front rank of progress, for those who lead, who do not merely struggle to keep up. Its place in your mill is obvious —or will be when you know it better. We invite correspondence.

The Vertical Hydrator will handle a maximum of four tons of sulphite stock per hour with a minimum strength increase of fifteen to twenty percent. That is, it will do the same work as six old style Hollander type beaters, and do it more efficiently. This is done with one-fourth the power necessary for the old type machine.

That is why the development of the Hydrator established new standards of quality, of speed, and of economy. In line with modern need, it is noiseless and requires no attention when in operation.

Fully covered by patents and patents pending in U. S. and foreign countries

VERTICAL HYDRATOR COMPANY

Pulp and Paper Mill Machinery and Supplies

General Offices: **Tribune Tower • Chicago, Illinois**

"Hydration," a booklet of scientific facts by an expert, is in preparation. Your request will assure you an early copy.

ment for a new mill at Colchester, reported to cost upward of $65,000, with equipment. It is understood that work will be placed in progress at an early date. J. Shay is president, in charge.

Portland, Ore.—The Columbia Paper Box Company, 215 East 25th street, has filed plans for improvements and alterations in mill at location noted. Work will be placed under way at once. Estimated cost has not been announced. Contract has been let to A. J. Authors, 360 First street, Portland.

Neenah, Wis.—The Sawyer Paper Company, 212 West Wisconsin avenue, has approved plans for a new addition to mill, to be one-story, 40 x 75 feet, designed primarily for storage and distributing service. General contract has been let to E. F. Dornbrook, 550 Milwaukee street, Menasha, Wis.; work is reported to cost about $18,000, with equipment.

St. Paul, Minn.—Brown & Bigelow, Inc., Quality Park, manufacturer of card stocks, etc., has begun foundations for a new addition to plant, for which general contract recently was let to the Paul Steenberg Construction Company Builders' Exchange Building, St. Paul, and will proceed with superstructure at an early date. It will be three-story and basement, 80 x 125 feet, reported to cost about $100,000, with equipment. Contracts for plumbing, heating and other miscellaneous work have been awarded to local contractors. Toltz, King & Day, Inc., Builders' Exchange Building, St. Paul, are architects and engineers.

Chester, Pa.—The Scott Paper Company, Chester, is operating at maximum capacity at local mills, and will continue on that basis for an indefinite period. During recent months the company has been carrying out an expansion and improvement program for enlarged output, including the replacement of four paper manufacturing units and installation of larger and faster paper-making machinery and auxiliaries.

Chicago, Ill.—The Acme Card System Company, 8 South Michigan avenue, manufacturer of card stocks and systems for office and commercial service, has filed plans for a new addition to plant at 1748-56 Belmont avenue, for increased output, to be three-story, 50 x 80 feet, reported to cost about $50,000, with equipment.

Toronto, Ont.—The Canadian Paper Board Company, 32 Front street West, has approved plans for a new addition to plant, to be one-story, estimated to cost about $65,000. It will be equipped for expansion in manufacture. General contract has been let to the Stephens Engineering & Supply Company, 25 St. Patrick street, Toronto, and work will begin at once. Kerry & Chase, Confederation Life Building, Toronto, are architects and engineers.

Indianapolis Demand Rather Indifferent

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 7, 1929.—Paper business in this territory has not improved during the fall season as the jobbers and manufacturers expected. The manufacturers of strawboards and other common grades of paper are, apparently, in a better situation than most others. The demand for paper containers is good and the factories in this state report a good volume of orders, particularly for the holiday trade.

Demand for fine papers, now that the initial school supplies have been distributed, is rather indifferent. The local jobbers say there is no response on the part of dealers and printers to price concessions and for the most part these are not being made.

A good demand is developing for glassines. More and more Indiana factories apparently have discovered the particular packing uses of these papers and the demand is increasing steadily, largely through new uses being discovered.

A fair demand is seen for roofing papers, but other grades of building papers have shown a slump during the last week. Greeting card stock is increasing in demand. Little change is seen in the news print situation, the demand particularly in the rural districts being very slow.

To Head Perkins-Goodwin Export Dept.

The Perkins-Goodwin Company, 551 Fifth avenue, New York, announces the establishing of an export department which will be managed by Harry H. Meyer, who for the past twenty years has been manager of the paper department of National Paper and Type Company.

Mr. Meyer is particularly qualified for the direction of export business and is well known throughout the paper trade. For several years he resided in Latin America and has traveled extensively.

HARRY H. MEYER

The export department of the Perkins-Goodwin Company will do a world-wide business. With over eighty years' record in the paper and paper mill supply business, this well known firm will further extend its vast business through this new department.

The offices of the export department will be on the 17th floor, 551 Fifth avenue, New York.

The Paper Industry in the Northwest

PORTLAND, Ore., September 27, 1929.—R. L. Shepherd of the Tumwater Paper Mills, speaking before the Pacific Northwest Advisory Board of the American Railway Association at its meeting held in Seattle late in September, gave an interesting resume of the development of the paper industry in the Northwest in the last five years.

"The West no longer depends on the East for its supply, for conditions have been reversed and large quantities of the finished product as well as pulp are shipped east."

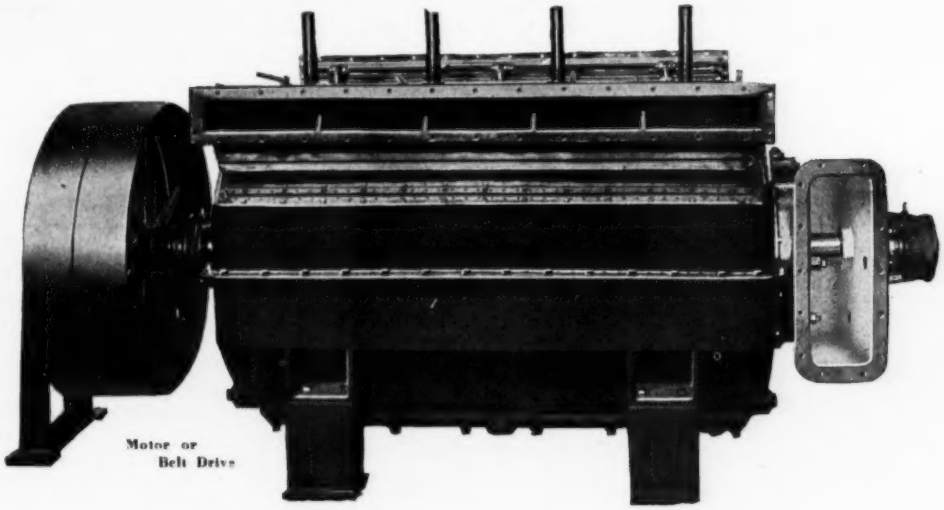
Mr. Shepherd said that in spite of higher wages and costs of raw materials, paper manufacturing is at a lower cost than five years ago. "In 1923 only five mills were in operation in Oregon, seven in Washington and four in British Columbia. The output of all mills was 1,620 tons of paper and 1,925 tons of pulp. At the close of 1928 there were seven mills in Oregon, 22 in Washington and eight in British Columbia with a total output of 3,130 tons of paper and 3,572 tons of pulp.

The percentage of increase was 43 in Oregon, 182 in Washington and eight in British Columbia.

In 1923 the approximate payroll of the pulp and paper industries in Oregon was $1,031,000; in Washington, $2,929,000, and in British Columbia, $1,016,000.

In 1928 the payrolls had increased to $1,412,000 in Oregon; $5,900,000 in Washington, and $1,463,000 in British Columbia.

Employees in the district increased from 4,700 to 8,400 in the same period. Mr. Shepherd stated that no industry, with the possible exception of lumber and transportation, exceeds this in number of persons employed.



PULP SCREENING IMPROVEMENT!

1. Screens Sulphite and Sulphate pulp *CLEAN*.
2. Cylinder is the only moving part, operating on anti-friction bearings.
3. Practically no maintenance cost.
4. Much less power required.
5. Good capacity.
6. Requires less space than one flat screen.
7. Practically noiseless.
8. Does the work of 2 or more flat screens.
9. Tightly closed type—no overflow or leakage.
10. Has solid end drum—no deckle straps used.

These are the ten outstanding advantages of the new Valley-Thune Rotary Screen—ten important reasons why this machine deserves your further investigation. Let us send you the complete story. Address the Valley Iron Works Company, Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Western Mfg. & Sales Div.: Smith & Valley Iron Works Co., Portland, Ore.

Miami Valley Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 9, 1929.—Herbert T. Randall, assistant mill manager of the Champion Coated Paper Company, Hamilton, was elected chairman of the Miami Valley Division of the American Pulp and Paper Mill Superintendents Association when its members met Saturday afternoon and evening, September 28, at the Butler County Country Club as guests of the Black-Clawson Company of Hamilton, and the Shartle Brothers Machine Company, of Middletown. Dinner in the evening followed an afternoon of golf, and the evening hours were devoted to a business meeting and entertainment.

Mr. Randall was elected chairman for the coming year; Marshall L. Barker, of the Beckett Paper Company, was elected first vice-chairman; Royal H. G. Smith, of the Sorg Paper Company, Middletown, second vice-chairman; and Thomas Harvey, of the Gardner-Harvey Company, Middletown, third vice-chairman. The next meeting will be held at the Hamilton Inn, at Franklin, on Saturday, October 26.

Prizes were awarded for the best scores merited during the afternoon's game of golf, and at 7 o'clock a delicious chicken dinner was served. Special decorations for the occasion lent a festive air, and during the dinner hour Louis Fries, of Middletown, sang several numbers.

The business session was held immediately following the dinner. W. W. Galloway, president, was in the Eastern states on business and was unable to be present. H. T. Randall, vice-chairman, acted in Mr. Galloway's capacity, until the election was held. After the brief business meeting, the hosts took charge of the meeting and provided an evening of entertainment.

Mrs. Marjorie Hankinson Squires, formerly of the Metropolitan New York Symphony, sang three operatic selections, an aria from the opera "Samson and Delilah," "The Old Road," and "Baby O'Mine." Mrs. Helen Eldridge accompanied Mrs. Squires.

The Meyer Brothers Harmony Four, of Middletown, a colored quartet, entertained in their own varied style with a number of negro spirituals and southern melodies. Louis Fries, tenor, also sang another melody.

Dr. Carl A. (Sunny) Sunberg, pastor of the Second Lutheran Church, of Springfield, talked on "The Sense in Non-Sense," and delighted his audience.

Those who attended the delightful affair were: L. C. Anderson, M. Hartley and R. H. G. Smith, of the Sorg-Oglesby Paper Company; Dr. C. A. Sunberg, Springfield; Allan Hyer, Wm. Macklem, C. B. Briede, C. S. Helvey, H. L. Kutter and F. C. Trowbridge, of the Black-Clawson Co.; M. L. Barker, C. F. Neiderman, H. H. Latimer, V. Friedrich, Jr., and A. J. Wildman, Jr., of the Beckett Paper Company.

F. L. Buchanan, H. H. Harrison and Ross Auvul, of the Crystal Tissue Company; Walter D. Randall, H. T. Randall, Chas. Soule, C. L. McKasson, Homer Ferguson, A. F. Gardner, R. W. Maggart, J. F. Rice, K. L. Jackson, C. B. Randall and W. E. VanHorne, of the Champion Coated Paper Company.

R. J. Murbach, J. Ditmeyer, H. F. Bennett, Ed Butterfield, J. Smith, and Tom Harvey, of the Gardner-Harvey Company; Adam Bridge, J. A. Hamm, C. W. Hein, Ed Bloedow, of the Shartle Brothers Machine Company; C. L. Chamberlin, Appleton, Wis.; Wm. T. Schenck, Miami Coated Paper Company; Walter L. Potts, Middletown; G. Quackenbush and Fred Sander, of the Richardson Company; R. E. Bevis, Shartle and Bevis Machine Company.

Ray Gleason, Franklin Board and Paper Company; R. L. Eminger (national secretary), Miamisburg; E. T. Judd and Tom O'Flyn, of the Wardlow-Thomas Paper Company; Chas. Raney, Container Corporation of America; A. J. Allison, Frank R. Henry and Ray R. Thompson, of the Simonds Warden White Company; H. D. Martindale, Shartle Brothers Machine Company; D. P. Hagerbauner, Circleville; A. C. Moore, Mid West Box Company; H. G. Funsett, Ball Brothers; D. H. Sprecher and J. Adam Ritz, of the American Asphalt Roofing Corporation.

Neil K. Bangs, Fox Paper Company; C. A. Miller, John MacMurray, C. A. Spinks and H. W. Server, of the Oxford Miami Paper Company.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 7, 1929.—The Valley Paper Company, Holyoke, Mass., entertained on September 24 and 25, Benton Mills, of Dumas & Co., printers and rulers, Lowell, Mass., Charles Mills, of the *Courier-Citizen*, Lowell, and a representative of the Globe Paper Company, Boston. The visitors were taken on a trip through the mill of the company, in which all the details of the manufacture of paper were explained. Another portion of the program was entertainment at the Mt. Tom Country Club by the Valley Paper Company.

The Hamlet News, a combined house organ and special lot list, isued by Arthur E. Ham & Sons, has made its first appearance and will probably be published once a month. A new line recently added by this concern is Monoplane Bond, made by P. H. Glatfelter Company, Spring Grove, Pa. Tangerine Roxburghe is a new color in the Worthy lines, handled by Arthur E. Ham & Sons, and made by the Worthy Paper Company, Mittineague, Mass. This is a strong, beautiful shade, suggestive of harvest time. Another new color is Green, the most startling of all the Roxburghes.

At the last bi-monthly sales meeting at the office of Carter, Rice & Co. Corp., Mr. Cowley, of the Orono Pulp and Paper Company, gave a highly interesting talk on Nabro Striped Kraft and some of the special water-marked grades of that concern.

The salesmen of the local distributors of the product of the Dill & Collins Company, Philadelphia, Pa., are receiving Diamond Dee, the company's new house organ. Their lines are sold in New England by John Carter & Co., Inc., and the Stone & Andrews Company.

John Carter & Co., Inc., are putting out some highly illustrated advertising on Merrimade Folding Coated, the product of the Merrimac Paper Company, Lawrence, Mass.

Knight, Allen & Clark, Inc., have added to their lines Border Bond, made by The Fraser Paper, Ltd., Madawaska, Me.

At the Boston office of the Whiting Paper Company, it is stated that the plant of the concern at Holyoke is running full time, with plenty of orders ahead.

William McLellan, of Carter, Rice & Co. Corp., has returned to his duties after a vacation and an illness previous to his vacation.

Frank H. Merrill, president of the Andrews Paper Company, F. Bendel Tracy, president and treasurer of the Fort Hill Paper Company, and Thomas Compton Walsh, sales manager of Hollingsworth & Vose Company, are among those from this city attending the meeting of the National Paper Trade Association at Chicago. Mr. Walsh has recently been confined to the house by illness.

George W. Wheelwright, president of the George W. Wheelwright Paper Company, North Leominster, Mass., has been calling on Boston paper merchants in the interest of the new line, Corinthian Text, in Wove and Laid, in deep colors.

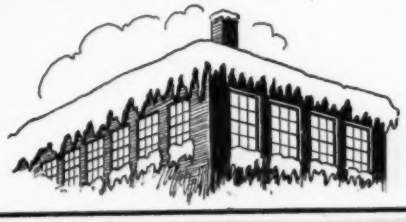
Simplified Practice for Shipping Tag

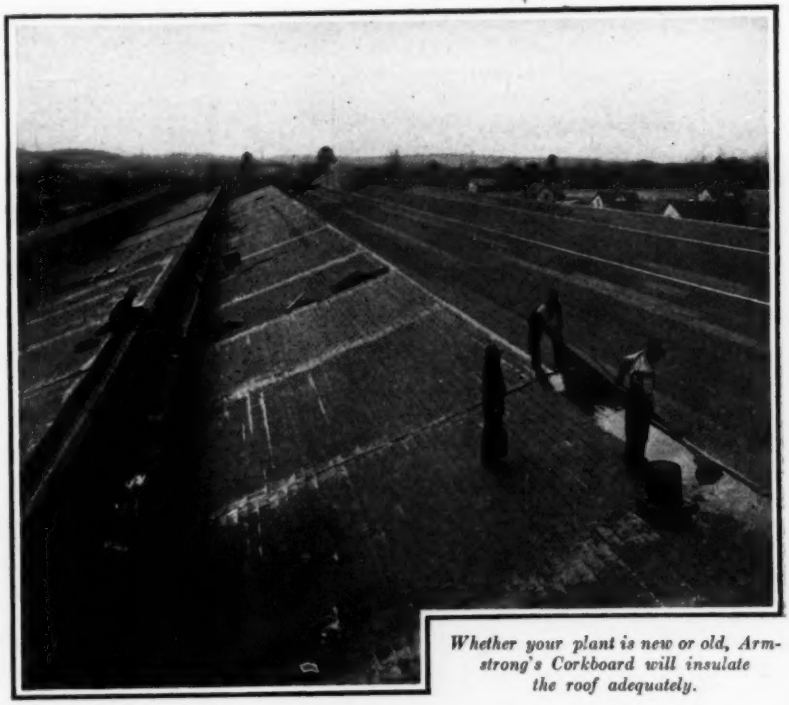
WASHINGTON, D. C., October 7, 1929.—It was recently announced by the Division of Simplified Practice of the Bureau of Standards, Department of Commerce, that Simplified Practice Recommendations No. 93—Paper Shipping Tags, should be considered effective from September 1, 1929.

The receipt, by the Division, of signed acceptances from a sufficient number of manufacturers, distributors and users of Paper Shipping Tags to insure the general adoption of this simplification program has made possible this announcement.

Do your ceilings suffer from the cold?

Adequate roof insulation will effect a quick lasting cure for ceiling-drip troubles!





Whether your plant is new or old, Armstrong's Corkboard will insulate the roof adequately.

WHEN frosty weather comes, does ceiling drip cause trouble in your plant? Are damaged goods, bad working conditions and roof rot the result of no insulation or poor insulation on your roofs?

You can readily rid your plant of these winter ailments. Adequate insulation of roofs with Armstrong's Corkboard will either prevent condensation entirely, or under the worst conditions, reduce it greatly. Simply by using enough Armstrong's Corkboard, which can be easily laid over any type of mill roof, the ceiling drip troubles from excessive condensation can be effectively eliminated. Your roofs will last longer—you prevent damage to goods and machines.

Fuel economy is another important benefit when you insulate your mill roof with Armstrong's Corkboard. Adequate corkboard insulation prevents the wasteful loss of heat. It enables you to maintain more uniform operating temperatures. It saves enough in heating cost to repay its own cost many times over. Under a cork insulated roof, too, workrooms are more comfortable.

To meet these cold weather conditions, we suggest that you consult Armstrong engineers about your particular insulation problems. Their services are at your disposal without any obligation on your part. We will also be pleased to send you our illustrated book, "The Insulation of Roofs to Prevent Condensation." Armstrong Cork & Insulation Company, 904 Concord Street, Lancaster, Pa.; McGill Building, Montreal; 11 Brant Street, Toronto.

Armstrong's Corkboard Insulation

for the roof of every building

Mural Paintings For Crown Zellerbach

The history and romance of paper making are being painted into ten beautiful mural panels by Warren Chase Merritt for the walls of the board room of the Crown Zellerbach Corporation in San Francisco. In this room, the executives will direct the activities of their many plants, surrounded by the colorful reminders of the past ages that have contributed to the making of paper and stimulated by the beauty of present production as pictured by this artist.

Two of the historical panels are reproduced here. The first one is a scene in ancient Egypt where papyrus, the first form of paper, was made. Papyrus was not a true paper, as we know it, but was made from split papyrus fiber such as that carried by the girl in the painting. The thin strips of fiber were glued together in a broad sheet upon which a second sheet was placed with the fibers

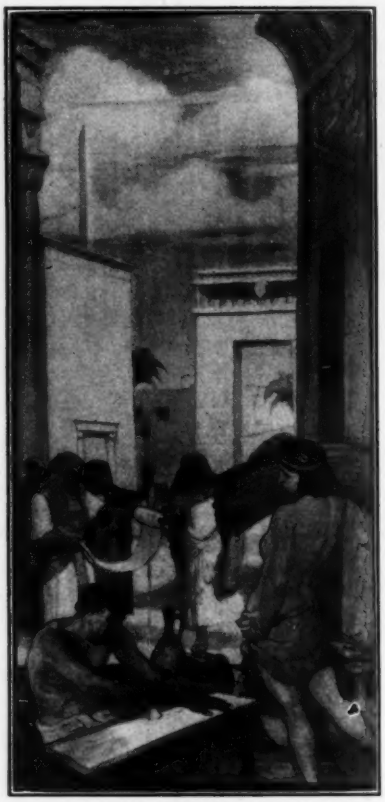


FIG. 1

of the second running at right angles to those of the first one. When pounded together the fibers enmeshed into a good writing surface. Papyrus was made into rolls such as that in the hands of the Egyptian nobleman in the painting. The slave in the foreground is shown trimming a piece of papyrus ready for the making of a scroll.

The second panel pictures the presentation of the first true paper to the Chinese Emperor. History states that the Chinese Emperor Hoti, about the year 170 B.C., employed a learned Chinese scholar, named Tsi-Lun, for thirty years to invent an efficient writing material. After experiments with silk cloth and other materials, he succeeded in making a fair grade of paper by beating bamboo and old rags to a pulp and compressing it in sheets in much the same way that paper is made today. The secret was guarded for six hundred years before it reached other lands through channels pictured in the other historical panels which will be reproduced from month to month as they are completed.

Both panels shown here are beautifully rich in color. Warm reds, clear blues and a harmony of other tones recreate the atmosphere of the ancient Orient. Warren Chase Merritt is a comparatively young artist who has been "discovered" by John Quinn, who is in charge of the interior decoration of the new Crown Zellerbach Building. Months of research as well as actual painting have already been put into these murals and the finished set of ten paintings will undoubtedly be regarded as an outstanding contribution to the interpretation of industry in art.

Bagley & Sewall Heating Plant Completed

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 5, 1929.—The new addition to the Bagley & Sewall Company's plant which will be used for heating purposes has been completed and is now in use. Construction work on the structure was started early in the spring and a large force of workmen have been employed on the project. The new

FIG. 2

system for heating the group of mill buildings is accomplished by a hot water heating plant which consists of two large boilers housed in a two-story building, 32 by 42 feet in size. In addition there is a large pocket in which several hundred tons of coal can be stored.

A new smoke stack has been erected which has a diameter of five feet inside and towers one hundred feet in the air. The hot water is circulated around the plant by two pumps driven by electric motors and each boiler is fed by a stoker driven by electric motor. The new heating plant is located east of the foundry on Sewall Island and takes the place of two buildings which were formerly used for that purpose.

New Photometer Catalog Issued

Leeds & Northrup Company, manufacturers of electric measuring instruments, of 4901 Stenton Avenue, Philadelphia, Pa., have just issued a new Photometer catalog. The booklet describes the various types of photometric apparatus manufactured by the company and explains their uses. The catalog is profusely illustrated.

The Last Word in Screen Perfection

End your Screen troubles with the well-known Leith-Walk Rotary Screen; open and accessible for cleaning; low in maintenance cost; requires but 2½ h. p. to operate and screens to perfection; sound theory backed up by advanced engineering and quality workmanship make this screen a lasting investment in trouble-proof satisfaction. See one operate and be convinced.

E. D. JONES & SONS COMPANY

PITTSFIELD, MASS., U. S. A.

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ARBITRATING TRADE DISPUTES

The response of the paper and pulp industry to the efforts of the American Arbitration Association to eliminate trade disputes in the producing, manufacturing and purchasing branches is a long stride toward the elimination of strife in trade.

When the members of organizations within an industry can settle their own commercial controversies among themselves without resorting to outside agencies, only then will they maintain solidarity in their ranks. Such a condition will tend to forward the normal progress of the industry and promote amicable relations among the inter-related groups by maintaining mutual trust and confidence.

No one is more able and better-equipped to diagnose the ills of industry and prescribe remedies than its own specialists. And no one is more fitted by experience and business wisdom to apply a comprehensive knowledge of technique and trade practices to the equitable settlement of business disputes than impartial exports in the industry.

Arbitration of controversies arising out of purchase and sales and other contracts provides a legally-recognized and effective method of settlement. An award is reached in short time and at nominal cost. The parties avoid the publicity attendant upon the filing of a suit in court and its detrimental effect upon their credit standing, in and out of the industry. Good-will of the disputants is preserved and as a rule they continue their business relations happily after the award is rendered. By employing arbitration instead of litigation in their business disputes, paper men eliminate one of the large expenses on their books.

It should be remembered that an award when properly recorded is final as to the merits of the claims and when confirmed by the court is as binding upon both parties as a legal judgment. An award is not a compromise verdict but an equitable decision based upon the justice of the claims of the respective parties. In rendering an award the arbitrator or arbitrators, as the case may be, considers the evidence of the parties in the light of practices and customs peculiar to the business transactions of the trade.

Arbitration plans now pending before the paper industry commend themselves to the intelligent consideration of progressive paper men. These plans include the use of an arbitration clause in contracts which provides legal security against the waste and cost of unforeseen future disputes and the use by trade bodies of the facilities established throughout the United States for the settlement of disputes. These two steps should, in a short time, free the industry from commercial ill-will and misunderstandings that otherwise would remain to disrupt trade relations.

TO DEVELOP RUSSIAN PAPER INDUSTRY

Richard Gray, master mechanic of the Bagley & Sewall Company, has written to officials of the firm giving his impressions of industrial conditions in Soviet Russia where he is installing new equipment in the Volga River Pulp and Paper mill at Belahkna. He claims that that country is planning a development of its paper industry which will insure production sufficient for its own needs. The 234-inch paper machine being installed by Mr. Gray and his associates is the first American machine to be purchased by the Russian government for its paper mills, Germany having supplied the previous ones.

Mr. Gray writes that Belahkna is about 150 miles from Moscow and the mill there is one of the most modern in Russia. Every modern convenience is provided for the mill hands with lockers, shower-baths and other comforts. He also said that he and the members of his staff are being treated with the utmost courtesy. They are being taken care of at a boarding house near the mill and have to pay 80 rubles or about $40 a month. In the house are electric lights, steam heat and modern bathing accommodations, while the food is excellent, their first meal at Belahkna having been the most enjoyable since their arrival in the foreign country.

Mr. Gray claims that Russia has an enormous supply of pulpwood waiting to be cut. Already, however, the lumbering of pulpwood tracts is being done more rapidly than the Russian mills can absorb and consequently much of it is being shipped to this country. It is of excellent quality and is much closer grained than the American or Canadian spruce inasmuch as the Russian wood is almost exclusively spruce. That it takes much longer for a spruce tree to grow in Russia than here is evidenced by the fact that a nine-inch stump shows about 100 annual rings indicating a growth period of 100 years. Plans are now being made by the Russian government to erect new pulp and paper mills at points convenient to the wood supply as well as to the market and on good power streams. Already, it is expected that the Bagley & Sewall Company will be given an order for another machine and as the expansion program of the Russian system of paper mill proceeds it is likely that the company will receive many more orders for machines of various types and sizes. In the vicinity where Mr. Gray and his staff are working there is a shortage of iron and many materials needed in the construction of the mill which is making completion go forward slowly. There is also a lack of certain implements such as electric drills which necessitates great delay in anchoring the machinery.

NORWEGIAN NEWS PRINT MORE ACTIVE

The market for newsprint in Norway is reported more active, this improvement extending to the book and writing markets. The demand for wrapping papers with the exception of shipments of ground wood, which show a rise of 16 per cent, exports during the first half of the current year have remained on about the same level as those of the corresponding period last year.

Paper Back Ground and Experience

Troy, Ohio, October 7, 1929

Editor PAPER TRADE JOURNAL:—

I was recently asked to state my back ground and experience in the paper industry by some well meaning person. I was amazed when I looked back and reviewed the past twelve years and wondered if there was anyone in the industry who could equal my record.

To begin with I come from a family of paper makers. Five generations ago in Linlithgow Scotland the McNeills had a mill. A picture of it has been handed down through the passing years and is now in my father's possession. A hunter is passing the mill with his dog. His not so very deadly weapon is a cross bow.

My paternal and maternal grandfathers were both paper makers. Every one of their boys, numbering nine, were paper makers and at least two of them contributed to the industry new processes.

I imagine that the technical words of paper making were among my first. At five my father took me with him on his business trip. I took my afternoon naps regularly; sometimes on a bench in salesmen's waiting rooms and sometimes in a convenient pile of broke. At many hotels I was fascinated listening to my father selling his machinery; he never has ceased to do so when he talks business.

At the mature age of twelve I got my first job in the shop as a tool room boy. I tired of it after about three weeks and went back to play. In succeeding summers, however, I worked longer and longer. I worked in the drawing room on machine design.

I had one summer in the pattern shop, another in the foundry and the rest in the machine shop. Here I worked on milling machines, drill presses, lathes, semi-automatics, grinders, boring mills and radial drills.—All this, understand, was on paper mill machinery. I designed, made patterns, cast and machined it.

It was not til I left college, however, that I had my first actual experience in a paper mill. I got my first job from E. C. Tucher, of the Chemical Paper Company, in Holyoke. I worked as a mill wright seven days a week for five months. In this capacity I set machinery, repaired all sorts of paper machines from pulpers to lay boys.—At the end of this period I asked to be put on a machine and was transferred as a fourth hand on their No. 4 Cylinder machine. I worked there three months under John Connors, a great if gruff old paper maker.

I finally left Holyoke to come back to the Miami Valley. Before leaving I assured myself of a job with Frank Smith in Middletown. I worked with him for about nine months as paper tester, fifth, fourth and third hand in that order. I also had experience on the shredder and some valuable time in the beater room furnishing and testing stock for fineness. All this work was done on a highspeed kraft machine.

My next move was to the Crystal Tissue Company of Middletown. I worked in their waxing plant with Jasper Kievit. Here was actual experience converting tissue. I was then promoted to assist Mr. Kievit. In this position I did cost work, pay roll, receiving, billing and the keeping of all inventories.

I left Crystal when my father started up a gumming plant here in Troy and I am now getting another experience and have hoped it will be my last.

I really am curious to know if there is anyone who can duplicate so complete an experience in paper.

My most valuable lessons were learned in the Chemical Paper Company, and in the Crystal Tissue Company. In the former was its unequalled fairness in the treatment of the ordinary day laborer and strict observance of seniority. In the latter was Mr. Ranch's encouragement not only to me but to every one of his co-workers; "key men" was what he called us.

Paper mill machinery, the design of it, operation, and converting of paper.—Is there anyone else twenty-five years old who has done the same? Very truly yours, JOHN A. SHARTLE.

G. S. Witham Resigns From Union Bag

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., October 5, 1929.—George S. Witham, Sr., has announced his resignation as manager of the production engineering department of the Union Bag and Paper Corporation, following a long term of service. He has been general superintendent of mills and later general manager of the entire corporation in addition to being a director of the firm for a number of years. Mr. Witham came to this place 24 years ago from the Great Northern Paper Company in Maine to take charge of the manufacturing of paper and pulp by the local concern. At that time the company had four mills in Ballston, three of which were paper mills and one a sulphite mill. They also owned four paper mills in Hudson Falls and the Fenimore sulphite mill had just been built.

After Mr. Witham had been in Hudson Falls for several years the company purchased the Allen Paper Company from Loren and Hiram Allen, who had operated it for fifty years. During the World War the corporation purchased a ground wood mill, sulphite mill and paper mills at Cheboygan, Mich., from Colonel Frambach. They also owned and operated at that time the Kaukauna Paper Mill at Kaukauna, Wis. High cost of production of paper and of raw material caused executives to seek changes which would lower costs of production and this led to the building of a kraft pulp mill at Tacoma, Wash. By these changes operations of the firm became so simplified and standardized that highly technical and intensive management was no longer needed. At this time the officials felt the need of a department for creating and developing special grades of paper which resulted in the creation of the production engineering department with Mr. Witham as manager.

The Kaukauna Mill, where Mr. Witham had intended to carry out his development of high grade papers, was recently shut down relieving him of the major share of his responsibilities. He has tendered his resignation to take effect October 1 and plans to retire from business. The resignation has been accepted by the firm. Mr. Witham is the inventor of many devices pertaining to the improvement and manufacture of paper and pulp. He is also the author of "Modern Pulp and Paper Making," said to be the most practical treatise on the paper industry every written. Many of these books were recently shipped to Russia to aid the paper manufacturers of that country in the development of the industry. He is also the author of text books for the International Correspondence School of which he is a faculty member as instructor in paper making.

Swedish Lumber and Pulp Holding Corporation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 9, 1929.—A prominent Swedish investment company is to found a new lumber-pulp holding company in cooperation with one of the leading Swedish banks, according to a report from Consul General John Ball Osborne, Stockholm, made public by the Department of Commerce.

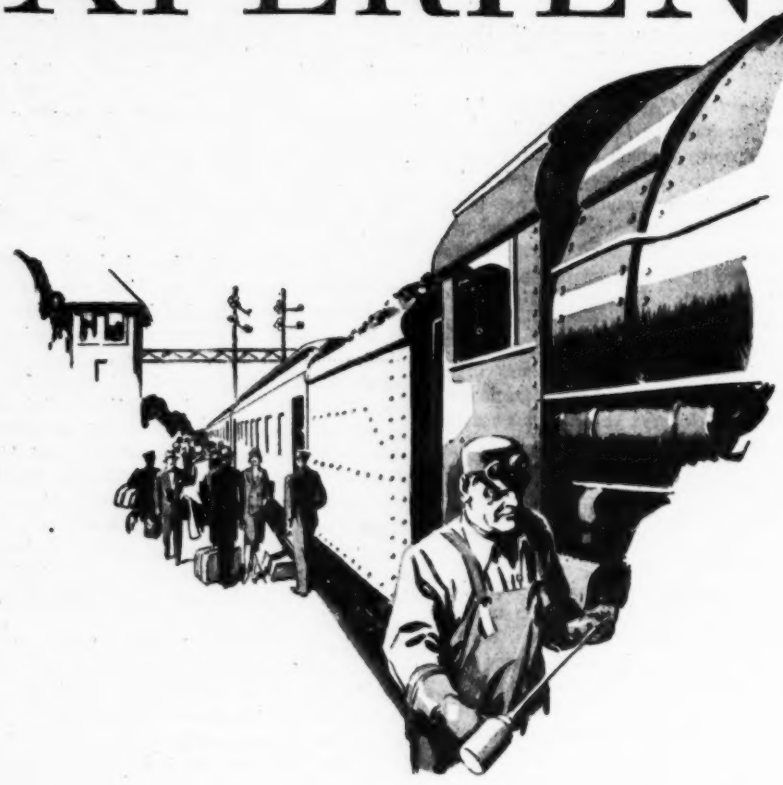
The new organization will take over sufficient stock to control ten lumber and pulp companies along the shore of the Gulf of Bothnia.

The concerns entering into this syndicate represent large values. Together they own forest property in Sweden covering approximately 3,660,000 acres.

All of the ten firms produce pulp, about 350,000 tons in 1928, and some of them paper, charcoal, and chemicals. Seven of them also cut lumber, the aggregate being about 275,000 M feet in 1928.

The capital of the new company has been fixed preliminarily at 50,000,000 crowns. The operations of the different mills will be continued as before and the various companies preserved under their old names, but a closer cooperation will be established between them, from which many advantages are expected to be derived. The total export value of the products of these companies is estimated at $30,000,000.

EXPERIENCE



IN the highly technical business of producing and distributing industrial chemicals—and especially compressed gases—there is no substitute for experience. One of the most valuable assets of the Mathieson organization is the broad background of experience gained by nearly forty years in the manufacture of chemicals. Because of this experience, Mathieson Chemicals possess an added value in the confident assurance of safety and satisfaction.

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PURITE (Fused Soda Ash)
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Benzoyl Chloride

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Edited by
RONALD G. MACDONALD, Secretary

Critical Study of Methods of Measuring the Bulk of Paper

By F. T. Carson [1]

Abstract

Because of the prevalence in the paper industry of diverse methods of measuring the property of bulk or voluminousness of paper, a study has been made of methods commonly used, and as a result of this investigation a standard method is proposed for measuring bulk. It was found that the different pressures used in the variable-pressure type of apparatus, and the use of an insufficient number of sheets in the case of measurements with thickness gages, are chiefly responsible for the diversity of results ordinarily obtained. As a result of comparative tests made on different types of apparatus and at various pressures, it was found possible to select procedures for the two most commonly used measuring devices so as to bring them into substantial agreement with each other and with the bulk actually obtaining in bound volumes.

A standard procedure is recommended which permits either the measurement of a pack of paper 0.1 inch or more in thickness with a thickness gage of standard type, or the measurement of a 1-inch pack under a pressure of 5 lbs./in.^{2} by means of a pressure bulker. It is recommended that the results be expressed as (a) bulking thickness, or the thickness in hundredths of an inch of 100-sheet pack; and (b) specific bulk, or the ratio of bulking thickness to the standard ream weight of the paper measured.

I. Introduction

The property of paper known as bulk is one of those vaguely defined characteristics frequently encountered in the older, empiric industries which may have varied interpretations and means of measurement. Because of the lack of any recognized standard procedure for the evaluation of this property, the Bureau of Standards, in cooperation with the Technical Association of the Pulp and Paper Industry in their program of standardizing paper testing methods, has recently made a study of the measurement of the bulk of paper.

According to the varied usage of the term in the paper industry, bulk may mean (a) the thickness of a certain number of sheets, (b) the number of sheets in a 1-inch pack, (c) the thickness of a single sheet, (d) the ratio of thickness to ream weight, (e) specific volume, (f) the ratio of apparent volume to fiber volume. But in any discussion of bulk there is usually the idea, expressed or implied, of something equivalent to or proportional to specific volume. Bulkiness is thought of in terms of the thickness which a sheet of a given area can be made to have with a given amount of paper-making material. It is the antithesis of denseness or compactness.

The measurement of bulk is of importance chiefly to publishers and bookbinders and to the manufacturers who contract to supply paper to these converters. Because it is customary to prepare the bindings for books while the pages are being printed, it is necessary to know beforehand how thick a book is going to be. At one extreme, a premium is placed upon bulky paper, as, for example, in popular novels which are usually desired to be as thick as possible for a given weight of material. At the opposite extreme, paper having a low bulk is a desideratum, as, for example, in dictionaries and encyclopedias.

II. Methods of Measurement

According to the methods in common use for determining bulk the principal measurement is that of thickness made on one or more sheets. In practice this measurement may be made on any amount of paper, varying from a single sheet to a pack several inches thick. The paper is compressed more or or less during the measurement, but there is little uniformity with respect to the pressures customarily used. The weight of the paper may or may not be taken into consideration, depending upon requirements and upon individual practice.

The thickness measurement is often made with an ordinary rule held against the edge of a pack of paper which is pressed down with the hand. A sliding caliper or combination square is often used. Sometimes the measurement is merely the thickness of a single sheet determined by means of a micrometer caliper or other type of thickness gage, or it may be the thickness of several sheets taken together. Sometimes the measurement is made after compressing the paper in a definite manner, such as by subjecting it to the pressure of a metallic disk of definite weight and cross-sectional area. But apparently only one instrument has been made specifically for the purpose of measuring bulk, the so-called pressure bulker.

III. Study of Methods of Measuring Bulk

In an investigation with the object of selecting and recommending a standardized procedure it did not seem worth while to consider the procedures involving hand-rule measurements under indefinite hand pressures, since these pressures are not reproducible. After some preliminary study of different procedures

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three were selected for study and comparison. These are (a) measurement with the pressure bulker, (b) measurement by means of thickness gages, (c) measurement of the thickness of a pack of paper under pressure uniformly distributed over the entire pack.

1. Pressure Bulker

In this apparatus, which is illustrated in Fig. 1, a pack of paper is clamped between two horizontal surfaces, the movable one of which communicates with a spring pressure gauge which indicates, in pounds per square inch, the pressure which is applied to the pack of paper. The surfaces are circular in form and have an area of 3 square inches each. A pointer attached to the movable pressure foot indicates on a vertical scale the distance between the two horizontal surfaces, which distance is the thickness of the pack. The scale supplied with the instrument is graduated in inches, and the smallest subdivisions are thirty-seconds

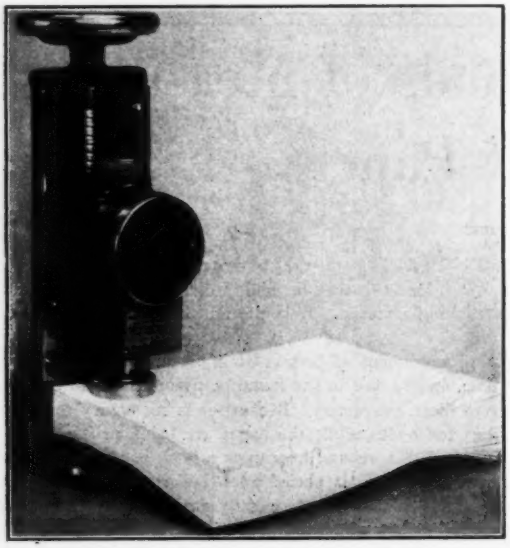

Fig. 1

Pressure Bulker.

of an inch. Pressure is applied by means of a screw jack turned with a hand wheel. The bulker is capable of exerting an indicated pressure of 50 lbs./in.^{2}, and can accommodate a pack of paper of any thickness up to 4 inches.

It was found in the instrument under examination that the guide stem of the pressure foot did not work freely. Its movement was very sluggish, and the pressure gauge did not respond readily to the pressures applied. The interior of the casting was found to be covered with molder's sand, some of which had become mixed with the lubricant and had given rise to considerable friction. After the interior and the moving parts had been thoroughly cleaned and the mechanism had been oiled the friction was greatly reduced, although an appreciable amount was still in evidence.

The pressure gauge was calibrated in an Amsler machine of 600 pounds capacity, a compression tester of the inclined balance type. The gauge was removed from the bulk tester and calibrated in its normal upright position. It was necessary, therefore, to add the weight of the gauge to the applied pressure in each case in order to get the total pressure exerted by the pressure foot on the surface underneath it. The actual pressure, in pounds per square inch, exerted by the pressure foot for each calibrated-scale division was found by dividing this total pressure by three, the area in square inches of the pressure foot. It was found that with increasing load the actual pressure differed from the nominal pressure by amounts ranging from 1 to 5 per cent. The differences were not consistently positive or negative throughout, although for the higher pressures the actual pressures were greater than the nominal pressures. The differences between actual pressures exerted when using increasing load and when using decreasing load amounted in some cases to as much as 25 per cent for the lower gauge readings, although for the most part these differences, which are indicative of friction in the mechanism, did not exceed 5 per cent.

The bulk tester was fitted with a scale graduated in hundredths of an inch instead of the less-convenient scale supplied with the tester. It was then studied in operation in order to determine the effect upon the bulk test of a number of factors, such as the size of the sheets of paper, the thickness of the pack measured, the amount of pressure applied, the duration of the pressure, and the size of the pressure surfaces.

(a) Effect of Size of Sheets.—When a given pressure is applied to a given area of a pack of paper, the marginal portion of the pack outside of the direct influence of the pressure surface adds a certain resistance to that which the paper directly beneath the pressure surface offers to compression. It seemed that the size of this marginal area might influence the degree of compression of the pack. Since the greatest influence of this nature is to be expected from the most compressible paper, a sample of newsprint, which was the most compressible paper studied, was cut into two packs 4 by 5 inches and 8 by 10 inches, respectively, and tested for thickness under different pressures. The 8 by 10 pack appeared to be slightly thicker at a given pressure. This test, however, did not seem conclusive in view of the fact that the individual sheets of paper differ somewhat in thickness in a given sample. The 8 by 10 pack was, therefore, measured for thickness and was then cut into 4 by 5 packs which were again measured in the same places as before and under the same pressures, ranging from 0.5 to 40 lbs./in.^{2}. The two sets of readings, recorded to the nearest hundredth of an inch, were identical. Since the readings on the 4 by 5 pack were taken after those on the 8 by 10 pack, any influence which previous pressure might have on the measured thickness of the smaller pack would tend to exaggerate the difference, if any, between the two sets of measurements. But as no differences were found in the two sets of readings in the latter test, it seemed valid to conclude that sheet size greater than about 4 or 5 inches square has no appreciable effect on bulk measurements as made by the pressure bulker. This conclusion was confirmed by tests in which a dial-thickness gage was attached to the bulker so as to permit of readings to thousandths of an inch. It was found that at a given pressure the thickness of a pack 8 inches square exceeded that of a pack 4 inches square by about 0.1 per cent for pressures ranging from 5 to 50 lbs./in.^{2} This difference could not be detected in the ordinary use of the bulk tester.

(b) Effect of Size of Pressure Surfaces.—This effect is not unlike that due to sheet size. By increasing the size of the pressure surface the marginal area for a pack of given area is decreased. Measurements were made on a 4 by 5 inch pack of news print with pressure surfaces of 1, 3, and 5 square inches in area and for pressures ranging from 0.5 to 40 lbs./in.^{2} The thickness data, recorded to the nearest hundredth of an inch, showed no appreciable differences for the three surfaces for a given pressure per unit surface. Measurements made to thousandths of an inch by means of the dial gage showed that for a given pressure per unit surface the thickness of a pack of book paper between surfaces 1 square inch in area exceeded that between surfaces 5 square inches in area by less than 0.2 per cent.

(c) Effect of Thickness of Pack.—It is usually considered that an accuracy of about 10 per cent in bulk standards and specifications is sufficient. Hence, it seems desirable that the measurement be accurate to within at least 1 per cent. For this reason the pack to be measured should be not less than about 1 inch in thickness when the scale graduated in hundredths of an inch is used and should be somewhat thicker for measurement with the

scale permitting readings estimated to the nearest sixty-fourth of an inch. The necessary thickness of the pack is largely determined by the degree of refinement in the thickness measurement. When the dial gage was used, permitting readings to thousandths of an inch, readings could be repeated fairly consistently on packs which were thicker than about 0.05 inch, the concordance being better the thicker the pack. The use of a thick pack also affords a better chance of obtaining a fair sample.

(d) Effect of Pressure.—The most important variable in bulk measurements is the pressure applied to the pack while the thickness measurement is being made. The thickness varies considerably according to the pressure applied, and the effect is different for different kinds of paper. The relation between thickness and pressure is not linear. A given pressure change in the lower pressure region has a greater effect on thickness than does an equivalent pressure change in the higher pressure region. Some typical data are presented in Fig. 2 to show the effect on bulk measurement of different pressures and different kinds of paper, a pack of 250 sheets being used in each case.

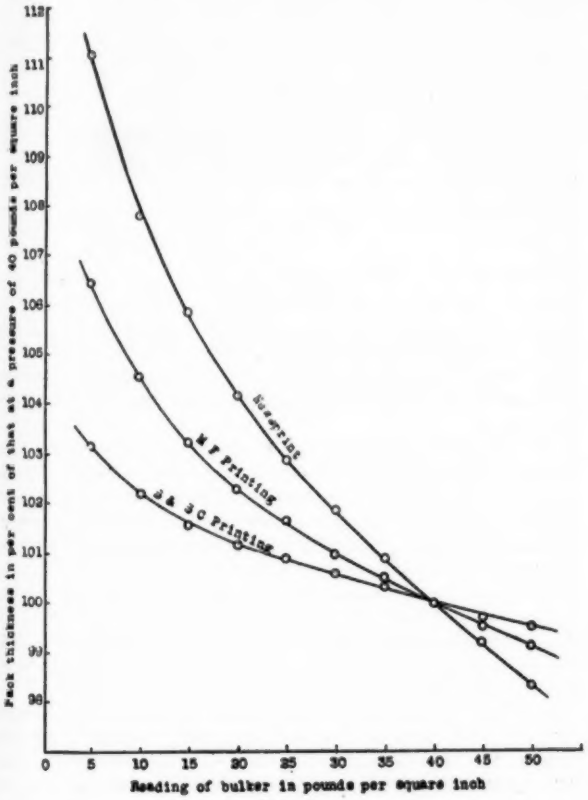

Fig. 2

Effect of pressure and type of paper on bulk measurement.

Repeated applications of pressure within the capacity of the bulker did not materially alter the bulk at a given pressure. For example, a pack of the most compressible paper studied was ten times subjected to a pressure of 40 lbs./in.² and was found to have lost only 1 per cent of its original thickness at a given pressure. After standing for some time, much of this was recovered. Various tests on different kinds of papers showed that little or none of the thickness is permanently lost by repeated applications of pressures within the capacity of the bulker. It was found that when a small loss appeared to have occurred it could virtually all be restored by allowing the pack to stand for an hour or so or by flexing and thumbing the pack. Hence, it is evident that the deformation in machine-finished paper resulting from pressures not greater than about 50 lbs./in.² is almost completely elastic. This is not so surprising when it is considered that such papers have previously been subjected to extremely heavy pressure in the calenders during their manufacture, so that the relatively much smaller pressures used in the bulk test have little or no permanent effect upon the papers.

Bulk measurements were made on paper under a pressure of 5 lbs./in.² after having previously subjected the pack to a higher pressure. The test was repeated many times, using various higher pressures to precede the 5-pound pressure. In one series of tests the thickness showed a uniform, slight decrease regardless of the amount of pressure used to precede the 5-pound pressure. The test was repeated, but this time the paper was flexed between each set of measurements so as to enable the pack to recover the temporary decrease in thickness, and pressures from 10 to 50 lbs./in.² were used to precede the 5-pound pressure. The bulk measurements all agreed to within about one-half of 1 per cent.

Tests were made to determine the effect of varying periods of time of application of pressure and of time intervals between operations. Time intervals of 10 to 30 seconds were used, and pressures of 5, 40, 0 and 5 lbs./in.² were applied in sequence. The bulk measurements as a given pressure were in all cases the same. If time intervals of several minutes were allowed, differences might be noted, as is to be surmised from the fact that the small temporary decrease in thickness following the release of pressure is largely recovered within an hour or so. But in normal, continuous procedure of bulk testing the rate of testing is not a factor in the results.

It appears, therefore, that the important requirements in the use of the pressure bulker are the adoption of a definite pressure at which all bulk measurements are to be made, the calibration of the pressure gauge in this pressure region, and the adoption of a pack thickness sufficient to give the required accuracy in the thickness measurements.

2. Thickness Gages

A very common means of estimating the bulk of paper is to measure the thickness of a single sheet or a few sheets with some form of micrometer or thickness gage and then to calculate from this value the number of pages per inch or the thickness of a pack consisting of a large number of sheets. Since the thickness of the usual sheet of paper is of the order of 0.005 inch, it is apparent that measurements made with a micrometer graduated in thousandths of an inch may involve considerable differences when magnified manyfold by such a calculation as the above. The percentage error would certainly be greater than the 1 per cent which appears to be the maximum error desirable in bulk measurements. Owing to the probability of a packing effect in an aggregation of sheets would total to the same value as a single measurement made on all the sheets at once, even though equal accuracy of measurement were possible in the two cases. This packing effect, if real, would be an important factor in bulk measurement as opposed to thickness measurement on single sheets. Since the pressures exerted by different kinds of thickness gages differ considerably, it seemed possible also that the factor of pressure might influence the results of bulk measurements made by means of thickness gages. In order to determine the role of such factors a study was made of this mode of bulk measurement.

(a) Pressure of Thickness Gages.—Two micrometer calipers with ratchet heads, such as are used by machinists, were tested for the pressure exerted by the spindle on the material measured. One end of a lever pivoted at the center was allowed to rest against the end of the spindle and the other end was weighted until the friction on the spindle was sufficient to cause the ratchet to operate. With a smooth brass surface in contact with the spindle one micrometer was found to exert a pressure of about 33 lbs/in.² and the other about 27 lbs./in.². But with a piece of blotting paper in contact with the spindle the pressure exerted was only about two-thirds as much as for the brass surface. The arresting of the ro-

tation of the spindle depends not only upon the pressure against the spindle, but also on the coefficient of friction between the spindle and the material being measured. Hence, the pressure is different for different kinds of material calipered. For paper the pressure exerted by the spindle of this type of micrometer is in the neighborhood of 20 lbs./in.².

A dial micrometer (Fig. 3) of a type conforming to the specifications of the Technical Association of the Pulp and Paper Industry was next examined and found to exert a pressure of about 10 lbs./in.² on the material being measured.

A pack of newsprint paper about 0.2 inch thick was calipered by means of the dial micrometer and also by means of one of the ratchet-type micrometers, the latter exerting about twice the pressure per unit surface as the former. The thickness values obtained with the ratchet-type, rotating-spindle micrometer were between 1 and 2 per cent smaller than those obtained with the dial micrometer. This appears to indicate a much smaller influence due to pressure than was found for the bulk tester, a circumstance which is probably to be explained by the much smaller total pressure exerted by the thickness gages and the influence of the marginal area of the pack in leveling out the differences which might otherwise exist in making measurements with thickness gages.

(b) Measurement on Single Sheets and on a Pack of Paper.—Three sets of measurements were made on 11 different kinds of paper, each consisting of about 20 sheets. The papers were first exposed for at least an hour in the atmosphere where the tests were to be made, after which thickness measurements were made both on the individual sheets and on the entire pack at once. All measurements on each kind of paper were made at the same place on the sheets. One measurement was made on the pack before and another after the individual sheets were calipered, and these two measurements were averaged and compared to the sum of the measurements for the individual sheets. The results were then expressed as the percentage amount by which the sum of the single-sheet measurements differed from the pack thickness. These

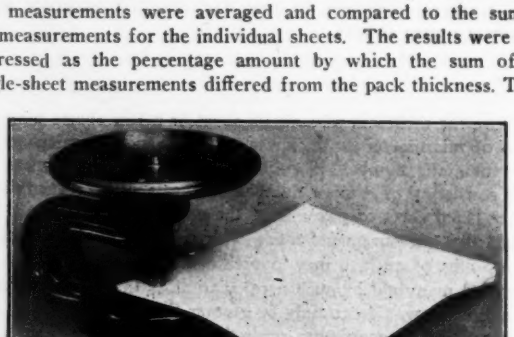

Fig. 3

Thickness gage.

results are shown in the first three columns of Table 1. The differences range from less than one-half of 1 per cent to more than 7 per cent. Considering the individual measurements made on single sheets, it was found that errors as great as 17 per cent could result in bulk values determined from measurement of a single sheet. Thickness gages available are not sensitive enough for very accurate measurements on single sheets of paper, as a consequence of which errors of measurement on single sheets make it uncertain how significant are the differences noted in the table. But the fact that all these differences are of the same sign is interpreted to mean that the packing effect is real and of some importance in the measurement of bulk.

These data are also tabulated in columns 4 and 5 of Table 1 so as to show the precision which may be expected in the case of the two procedures. These values represent the percentage differences in duplicate determinations. The agreement of duplicate determinations is much better for measurements on a pack of paper than for measurements on single sheets. Except for the

TABLE 1
MEASUREMENTS WITH THICKNESS GAGE

Kind of paper	Difference between sum of single sheets and pack thickness			Reproducibility at 65 R. H.[1]		Humidity effect, 65 R. H. to 30 R. H.	
	65 R. H. Per cent	63 R. H. Per cent	30 R. H. Per cent	Pack Per cent	Single sheets Per cent	Pack Per cent	Single sheets Per cent
Writing	+1.6	+1.1	+3.9	—0.1	—0.4	—1.6	+0.7
Bond	+3.0	+3.0	+2.4	— .1	— .1	—1.4	—1.9
Ledger	+1.2	+2.5	+3.3	+1.2	+2.5	—1.3	+ .8
Coated book	+1.4	+1.8	+1.9	+ .4	+ .7	—1.3	— .7
S. and S. C. book	+1.2	+3.0	+3.4	+ .4	+2.3	—2.4	— .2
Offset book	+5.5	+2.8	+3.4	+ .1	— .6	— .8	— .8
Antique book	+2.4	+3.7	+2.9	+ .1	+1.5	—1.0	— .5
"Hibulk" book	+3.3	+4.2	+3.6	— .1	+ .7	—1.1	— .9
Mimeograph	+4.7	+5.7	+5.7	+ .1	+1.0	— .7	+ .1
Standard news print	+ .4	+2.0	+3.2	+ .6	+2.3	—2.0	+ .1
Bulky news print	+6.6	+7.6	+7.5	+ .5	+1.4	— .4	+ .4

[1] R. H. = per cent relative humidity.

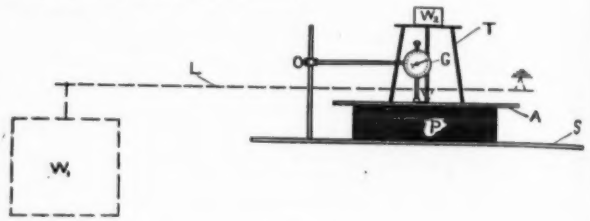

Fig. 4

Bulking press.

ledger, the agreement is very good for measurements on the pack. The difference in the case of the ledger is probably real, rather than in the nature of an error of measurement since the time allowed for conditioning was probably too short for such heavy paper.

The above observations relative to the packing effect and to the precision of measurement show that the current practice of caculating bulk from thickness measurements on a single sheet of paper should be discouraged, and that bulk measurements should always be made on a pack of paper of a thickness commensurate with the sensitivity of the measuring device.

(c) Effect of Humidity in Bulk Measurement.—In the last two columns of Table 1 are presented the percentage differences in the thickness of paper at 65 per cent relative humidity and at 30 per cent relative humidity, as determined both on the packs and on the individual sheets.

The data are expressed as the percentage change in thickness when paper is brought from moisture equilibrium at 65 per cent relative humidity to equilibrium at 30 per cent relative humidity. The results for measurements on single sheets show positive and negative differences about equally divided and confirm previous data to the effect that the influence of humidity changes in this region is of the same order of magnitude as the error of measurement of a single sheet of paper with a micrometer, and that it is, therefore, impossible to determine with certainty by the measurement of a single sheet of paper whether or not its thickness is altered by a change in moisture content. But the data obtained on packs of paper show a consistent decrease in all cases and indicate that the thickness of paper does change according to moisture content. About 2.5 per cent is the greatest difference shown by these data, but additional tests showed that in going from 65 to 15 per cent relative humidity thickness was decreased as much as 8 per cent in the case of one sample of paper.

3. Bulking Press to Apply Uniformly Distributed Pressure.—The average pressure on the leaves of an ordinary book as it lies on the table is but a fraction of an ounce per square inch. On the other hand, during the binding process the book may have been subjected to pressures of 40 or 50 lbs./in.² In order to stimulate to some extent these actual and extreme conditions met with in the life history of a bound volume so as to have a logical basis of comparison for bulk data, a bulking press was improvised

by means of which such extremes of pressure, distributed uniformly over the entire pack, could be applied. This apparatus is shown schematically in Fig. 4. The pack of paper, *P*, was placed on a horizontal surface, *S*, and a thick aluminum plate, *A*, was laid on top of the pack. A dial gage, *G*, was provided for measuring the thickness of the pack at any time. The heavy pressures were applied by means of the lever *L*, and a suitable weight, W_1. In applying the small pressures the lever was removed, a tripod, *T*, was placed on the aluminum plate so as to clear the gage, and a suitable weight, W_2, was added so that the combined load of this weight, the aluminum plate, the tripod, and the gauge pressure would produce the required pressure.

No especial refinements were deemed necessary in applying the heavier pressures, since these were intended primarily to approximate bookbinding pressures, and since, in the study of the pressure bulker, it was found that the amount of pressure preceding a bulk measurement at a comparatively light pressure might vary considerably without affecting appreciably this bulk measurement. However, the member serving as a knife-edge in contact with the plate, *A*, was made to extend entirely across the plate in the longer direction of the pack of paper, and both this member and the plate were of sufficiently sturdy construction to insure against appreciable warping of the plate under the heaviest pressures used. All reasonable care was taken to insure that the pressures actually applied through the lever system were approximately those desired in each case.

It was found impracticable to use the extremely low pressures of less than an ounce per square inch, as it was necessary to apply a few ounces per square inch to some of the papers in order to flatten them out sufficiently to give comparable results with the others. A working range of pressures having a minimum of about half a pound and a maximum of about 40 lbs./in.^{2} was found feasible for bulk measurements.

Experiments at pressures of a few ounces per square inch showed that the change in thickness per unit change in pressure in this low-pressure region is several times that which takes place in the neighborhood of 5 lbs./in.^{2}, as is to be surmised from the shape of the curves of Fig. 2. Because of this fact there is a certain disadvantage in working at very low pressures, since a greater degree of precision in applying the pressures is required in the low-pressure region. On the other hand, high pressures are much less significant in bulk measurements, since the thickness of a bound volume in use is determined by relatively small pressures.

The bulking press was further studied in connection with the pressure bulker and the thickness gage, using various pressures in measuring the bulking properties of several kinds of paper.

IV. Comparative Tests by Three Methods

Eleven kinds of paper, selected to represent the most important types in which bulk is a significant factor, were used for these tests. A pack of each, approximately 1 inch in thickness, was tested by means of the bulking press, the pressure bulker, and the thickness gage conforming to the technical association specifications. In the case of the bulking press pressures of 0.5, 40, 0, and 0.5 lbs./in.^{2} were applied in sequence. Next the pressure bulker was used on the same packs, and pressures of 0.5, 5, 20, 40, 0 0.5, and 5 lbs./in.^{2} were applied in sequence. Following this procedure the packs were measured with the thickness gage having a constant pressure of about 10 lbs./in.^{2}. Then the procedures were repeated in reverse order, and the two values for each procedure were averaged so as to compensate for the small differences due to repeated application of pressure.

A pack thicker than about a quarter of an inch could not be measured with the thickness gage, so each pack was divided into four parts which were measured separately and the sum taken for comparison with the other methods.

It was necessary to modify the pressure bulker in order to get data at a pressure of 0.5 lb./in.^{2}. Such data were desired in order to determine the feasibility of a design of apparatus having the comparatively large pressure surfaces of the bulker, but dispensing with the screw jack and pressure gage and using a constant low pressure in conjunction with a means of measuring the thickness of the pack. The pressure bulker was not designed for recording such low pressures, but the required pressure was obtained by taking off the cap screw and weighting the pressure foot by the required amount. It was necessary also to take into consideration the friction in the guide stem, since it was too great to be neglected in this low-pressure region. The pressure was measured, as in the case of the thickness gages, by means of a weighted lever.

The results of these comparative tests are shown in Table 2 and in Figures 5, 6, and 7. In the table the results are expressed as bulking thickness, or the thickness in hundredths of an inch of a pack of paper consisting of 100 sheets. The pressure applied for each procedure is noted in the heading for that column. For example, the results in the third column, headed "Bulking press, 40-0-0.5," were obtained by applying a pressure of 40 lbs./in.^{2} by means of the bulking press, entirely releasing this pressure, and then applying a pressure of 0.5 lb./in.^{2}, immediately after which the thickness of the pack was determined. The weight in pounds of the standard ream of 50 sheets, 25 by 40 inches in area, is given for each kind of paper, as this quantity is required in calculating the specific bulk. An identification symbol is given each kind of paper as a matter of convenience in making the graphic tabulations of Figs. 5 and 6. In these graphs the samples of paper tested are the abscissas, and the values for the quantity determined on each are plotted as ordinates. In Fig. 5 the data of Table 2 are plotted for four different procedures in the increasing order of bulking thickness as determined by the procedure first

TABLE 2.—COMPARATIVE TESTS

Kind of paper	Identification	Ream weight, 25 by 40—500	Thickness of 100 sheets (in hundredths of an inch)											
			Bulking press 40—0—0.5	Bulker modified, 40—0—0.5	Bulking press, 0.5	Bulker modified, 0.5	Pressure Bulker, 40—0—5	Pressure bulker, 5	Bulking press, 5	Thickness gauge	Pressure bulker, 20	Pressure bulker, 40	Bulking press, 40	Specific bulk[1]
		Lbs.												
Writing	W	51	35.6	35.6	35.9	35.9	34.4	34.8	34.4	34.6	34.1	33.3	33.4	0.68
Bond	B	65	47.0	47.5	47.5	48.0	46.0	46.0	46.0	45.8	45.0	44.0	44.5	.70
Ledger	L	97	58.7	58.7	58.7	59.3	56.9	56.9	56.9	56.6	56.2	55.6	55.6	.58
Coated book	C	83	40.6	41.1	41.1	41.1	39.4	39.4	39.4	39.4	38.9	38.9	38.9	.47
S. and S. C., book	S	53	31.6	31.3	31.6	31.6	30.6	30.6	30.3	30.4	30.0	29.6	29.6	.57
Offset, book	O	58	52.2	52.2	53.3	52.8	50.6	51.1	50.0	50.6	49.4	48.9	47.8	.87
Antique book	A	54	51.1	51.7	52.2	52.2	50.0	50.0	50.0	50.0	48.9	47.8	48.3	.93
"Hibulk" book	H	56	67.8	67.8	69.3	69.3	65.0	65.7	65.0	65.5	63.6	62.1	60.7	1.17
Mimeograph	M	51	47.5	48.0	49.0	48.5	46.0	46.5	46.0	46.2	45.0	44.0	44.0	.91
Standard news print	N	37	37.2	37.6	37.6	37.6	35.2	35.6	36.0	35.4	34.0	32.8	32.8	.96
Bulky news print	K	37	52.2	52.2	53.9	53.3	48.3	48.9	47.8	48.2	46.1	44.4	43.9	1.30

[1] Calculated from measurements with thickness gage.

tabulated. In Fig. 6 the data, expressed as specific bulk, are plotted in the increasing order of bulk. Specific bulk is proportional to specific volume of the packs and is the ratio of bulking thickness to ream weight. Specific bulk values for the different papers are shown in the last column of Table 2. The relation between specific bulk and compressibility is shown in Fig. 7, from which it is seen that they are roughly proportional, as might be expected. Since thickness is not directly proportional to pressure, compressibility is arbitrarily taken as the per cent change in pack thickness when the pressure is increased from 0.5 to 40 lbs./in.^{2} in the bulking press. The specific bulk in this case is that at the beginning of the same procedure, at a pressure of 0.5 lb./in.^{2}.

V. Conclusions and Recommendations

1. Negligible Effect of Preliminary Heavy Pressure

At first it was thought that any method of measuring bulk to be really significant would have to simulate to some extent the conditions of bookbinding which involve rather heavy pressures, as it seemed probable that the heavy pressures used would have an appreciable permanent effect on the thickness of a volume. It was for this reason that in a preliminary report it was recommended that in using the pressure bulker a pressure of 40 lbs./in.^{2} should first be applied, then released, and finally a pressure of 5 lbs./in.^{2} be applied and the thickness measurement made under this lower pressure. It was for this reason also that the procedure with the bulking press which has been adopted as the reference basis for this series of comparative tests includes a pressure of 40 lbs./in.^{2} to precede the light pressure of 0.5 lb./in.^{2} under which the thickness measurement is made. But the data in Table 2 indicates that the results at any given pressure are pretty much the same regard-

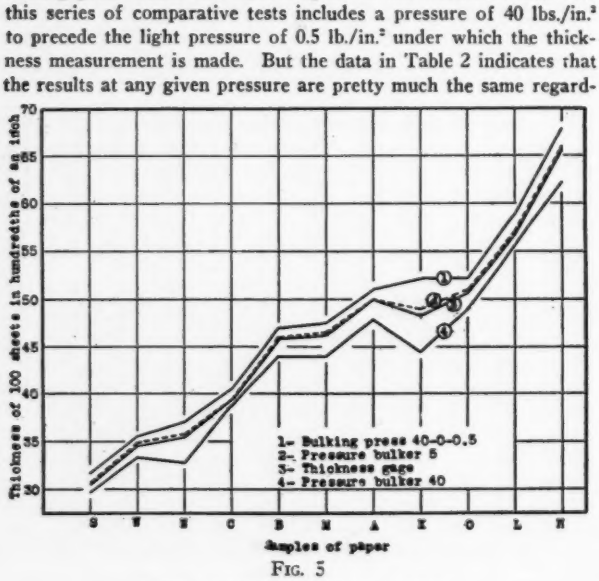

Fig. 5

Bulking thickness by different methods.

less of whether or not a heavier pressure has just preceded that at which the thickness measurement was made.

2. Choice of Method

The bulking press, which simulates the conditions associated with a bound volume and which has been made the touchstone of the comparative tests herein reported, is not a practical solution of bulk measurement. It is a logical procedure and is excellent for measuring the bulk of a thick pack of paper in sheets of small size. But in practice there may be relatively few sheets and they may be of any size from a few square inches in area to a thousand or more. An apparatus having pressure surfaces a thousand square inches in area would be unwieldy, expensive, and awkward to use and would require means of applying a total load of not less than 500 pounds for a full-size ream of book paper. Such a large pressure foot could scarcely be made light enough or be readily counterbalanced for use with small sheets and small loads without introducing an undesirable amount of friction. The data of Table 2, taken with the modified bulker at a pressure of 0.5 lb/in^2., indicate that an apparatus having pressure surfaces a few square inches in area and designed to exert a small pressure would probably be satisfactory for the measurement of bulk, especially

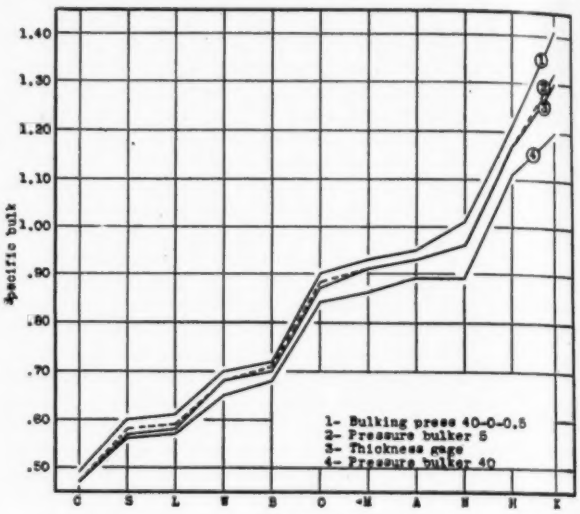

Fig. 6

Specific bulk by different methods.

of relatively thick packs of paper. But, despite the fact that existing instruments for bulk measurement are not ideal for the purpose, there are several reasons why it does not seem desirable to recommend the design of a new type of apparatus to displace them. Such an instrument would have to be rather precise and, therefore, expensive in order to give sufficiently accurate results on thin packs, a demand often met with in the practical measurement of bulk. Frequently when a manufacturer is called upon to match a sample of paper for bulk only a small sample has been submitted, and the necessary data must be obtained from a few small sheets. Furthermore, bulk is not usually considered a major property of paper, and the tolerances in the specification of bulk are rather liberal, so that if conditions of operation for existing apparatus can be found which will give consistent relative results approximately paralleling the bulk values for paper in bound volumes it seems preferable to standardize the operation of existing apparatus rather than to create a new type of testing device. In any practical solution of the problem of bulk measurement it appears that only relative values can be obtained anyway, as is indicated by the results with the bulking press which are themselves only relative, since the normal pressure to which a bound volume is subjected is usually less than the smallest pressure found practicable in using the bulking press.

That it is feasible to use existing instruments under certain conditions is indicated by the data shown graphically in Figs. 5 and 6. The results of curve 3, which were obtained with a thickness gage of standard type, are on the average of 97 per cent of the corresponding values for curve 1 obtained with the bulking press, and in only one case do they deviate more than 1 per cent from this relative amount. This one exception, the bulky newsprint, is about 4 per cent lower than it should be to stand in the proper relation to the other values. It may be seen from Figs. 6 and 7 that this paper is also singular in that it has the highest specific bulk and the greatest compressibility of all the samples tested. It appears from Fig. 6 that the results at different pressures tend to diverge with increasing specific bulk and compressibility. (Fig. 7) In general, therefore, it appears valid to determine relative bulk with the thickness gage, using a pack thick enough to be consistent with the sensitivity of the instrument, and

possibly being a little more lenient with the tolerances in the case of very bulky, compressible paper.

As is indicated by curve 2 (Figs. 5 and 6), the use of the pressure bulker at a pressure of 5 lbs./in.² gives results which agree very closely with those obtained with the thickness gage. It happens that this pressure is a fair compromise between the rather high pressures often used in measuring bulk and the very low pressures which are, perhaps, most significant in connection with bulk. As the pressure is increased above this amount the parallelism becomes less and less satisfactory.

It appears, therefore, that not only is it possible to choose conditions of operation of existing devices which will give satisfactory relative results, but the proper choice of conditions brings to the two most widely used instruments for bulk measurement into close agreement.

3. Expression of Results

Practice differs considerably with respect to the expression of results. Bulk is usually expressed in terms of thickness as a matter of convenience in connection with bookbinding. But some express the results as the number of pages to the inch and others as the thickness of a certain number of pages. The latter seems the more logical of the two, since increasing thickness for a given amount of material varies in the same direction as the concept of increasing bulk. An increasing number of pages to the inch, on the other hand, connotes decreasing bulk. An expression of the number of pages to the inch should be associated with compactness rather than with bulk.

As a result of the usual practice of expressing bulk data in terms of thickness the fundamental concept of bulk is often lost sight of. Bnt primarily bulk is a specific property of paper akin to specific volume, although for the sake of convenience it is not usually so expressed. It seems logical and desirable to recognize two aspects of bulk, which are essentially usages (a) and (d) mentioned in the introduction and to express the results in two

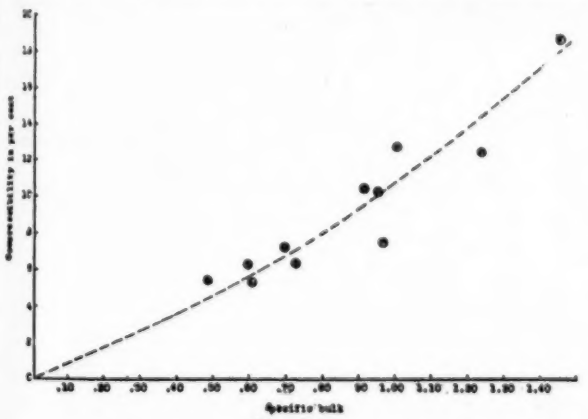

FIG 7

Relation of compressibility to specific bulk.

ways: (a) As bulking thickness, to mean the thickness in hundredths of an inch of a 100-sheet pack of paper; and (b) as specific bulk, to mean the ratio of bulking thickness to the weight in pounds of the standard ream of 500 sheets, 25 by 40 inches in area. Bulking thickness is then a convenient quantity in connection with bookbinding, and specific bulk is a quantity which expresses the inherent quality of the paper with respect to bulk and is so chosen that the usual book papers have a value in the neighborhood of unity. (See last coumn of Table 2.)

4. Recommended Standard Procedure

A standard testing method and manner of expressing the results of bulk determinations are recommended as follows:

The bulk tests shall be carried out in an atmosphere of standard hygrometric state (65 per cent relative humidity and 70 F.) as prescribed by the Technical Association of the Pulp and Paper Industry, and the paper to be tested shall have been properly conditioned in this atmosphere. The pack thickness shall be measured by one of the following alternate procedures:

1. A dial thickness gage of a type conforming to the specifications of the Technical Association of the Pulp and Paper Industry[3] shall be used. A pack of paper not thinner than 0.1 inch shall be measured for thickness on the four corners by means of this gage, a margin of at least half an inch between the pressure foot and the edges of the pack being maintained during the measurement. The average of the four readings shall be used in calculating the bulk values.

2. A pressure bulker shall be used, having a pressure foot not less than 1 square inch in area and being provided with means of applying a definite known pressure of 5 lbs./in.² and means of measuring the distance between the pressure surfaces. A pack of paper approximately 1 inch in thickness shall be measured at the four corners between the pressure surfaces of this bulker under a pressure of 5 lbs./in.², a margin of at least half an inch between the pressure foot and the edges of the pack being maintained during the measurement. The average of the four readings shall be used in calculating the bulk values.

In either case the results shall be expressed as—

(a) Bulking thickness=Thickness in hundredths of an inch of a 100-sheet pack,

(b) Specific bulk $= \frac{\text{Bulking thickness}}{\text{Weight of standard ream (25 by 40-500) in lbs.}}$

[3] Paper testing methods, p. 55; 1928.

Technical Association Notes

Charles Wagner, formerly with the Cornstalk Products Company, has joined the research staff of the Celotex Company, 310 West Superior Avenue, Chicago, Ill.

Walter L. Glass, formerly with the B. F. Goodrich Company, in Akron, Ohio, is now with the Tolhurst Machine Works, of Troy, N. Y., manufacturers of centrifugal separators.

Bennett Preble, a recent graduate of the California Institute of Technology, is now in the research department of the Marathon Paper Mills, Rothchild, Wis.

J. Ronald Atwater, recently a student in the New York State College of Forestry, is now in the technical service department of the Mead Pulp and Paper Company, Chillicothe, Ohio.

William R. Willets, of the Oxford Paper Company, will join the research staff of the Western Electric Company, in Kearny, N. J., on October 15.

C. E. Peterson, who has been a member of the Champion Fibre Company research staff in Canton, N. C., is now with the Rap-in-Wax Paper Company, in St. Paul, Minn.

Hans Kaskull, who was with the New England Laboratories, Springfield, Mass., is now in the technical control department of the Continental Paper and Bag Mills Company in Rumford, Maine.

Homer Eaton, cooperative student at the Newton Falls Paper Company, Newton Falls, N. Y., has returned to New York University this fall to complete his chemical engineering course.

John B. Calkin, formerly microscopist in the research department of the Brown Company, Berlin, N. H., is now in the chemical research department of the Denison Manufacturing Company, Farmingham, Mass.

Camachines in Action

"Camachines in Action" is the title of a new booklet that has just been issued by the Cameron Machine Company, 61 Poplar street, Brooklyn, N. Y. As the name indicates the booklet shows pictures and gives brief descriptions of some typical installations of Cameron winders in some of the most prominent mills in this country and Canada. A copy of the booklet may be obtained by applying to the company.

Filtration of Paper Mill White Water*

By Benjamin F. Miller[1] and Lycurgis Laskaris[2]

White waters from paper machines contain a small quantity of recoverable fiber, size, and filler. Since the flow of white water amounts to some hundreds of gallons each minute, it is essential to recover the stock present, which, though amounting to only a small fraction of one percent, totals thousands of dollars in value over a yearly period. Book mills find settling systems most economical and useful because of the high clay content of their stock. Sulphite and groundwood mills, on the other hand, must resort to filtration since their stock does not settle readily. Present practice involves the use of continuous vacuum filters of the Oliver or American type. This paper is concerned with laboratory studies of such vacuum filtration.

Plant Operation

It has been found that filtration of white water directly through cloth or fine wire is impracticable since the slime and fine particles quickly clog the filtering medium and render further flow impossible. This trouble has been remedied by the use of a certain amount of good stock from one of the chests to "sweeten" the white water. The long fibers of the added stock form a mat through which the white water can be filtered without undue resistance. Fourdrinier or any other wire of 60-70 mesh has been found more satisfactory; cloth has been discarded entirely. The vacuum is maintained by means of a barometric leg, sometimes supplemented by vacuum pumps. The time of filtration may vary between ¼ and 4 revolutions per minute, the exact time being set by the needs of the operator. A typical filtration cycle is generally 20 to 80 seconds of submergence, and about 10 seconds of drying, at the end of which the cake is doctored off and returned to the stock chest. Some plants "sweeten" with un-jordaned stuff and some with machine stuff. The freer stock is generally used except in mills where colors are run frequently. It should be borne in mind that the sweeting stock with the entrapped fibers must be returned to the chest from which it was originally taken since stocks of different freeness should not be mixed. This means that when colors are being run on the machine, the sweetener must be taken from the machine chest rather than from the beater chest because the beater chest is either empty during the last half-hour of the order, or is being filled with stuff of a different color or grade for the next run.

Variables in Operation of Filters

Once the filter has been installed, the effect of the following factors on the capacity and efficiency of the unit is of interest to the plant engineer since they may be changed to suit his operating conditions:

(a) The concentration of the filter mix.

* Research carried on at Bangor Station, School of Chemical Engineering Practice, Massachusetts Institute of Technology.
Permission to publish received from the Eastern Mfg. Co., through the courtesy of Mr. C. A. Blodgett, Chief Chemist.
[1] Harvard Medical School, Boston, Mass.
[2] With Atlantic Refining Co., Philadelphia, Pa.

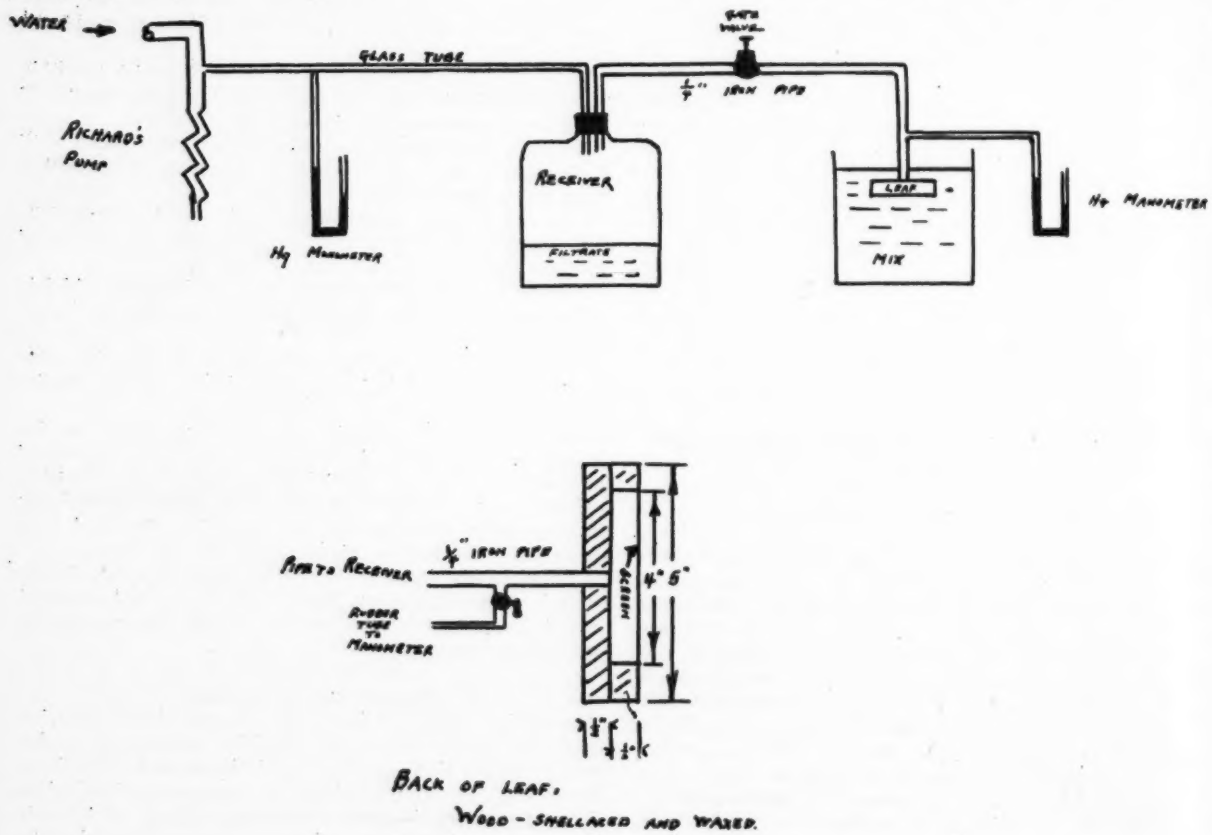

Fig. 1
Diagram of Apparatus With Detail of Vacuum Filter Leaf

(b) The time of filtration.
(c) The intensity of vacuum.
(d) The type of sweetening stock.
(e) The depth of the filter mix.

A quantitative study of the effect of each of these five variables has been made in the laboratory, duplicating on a small scale plant operation of a vacuum filter.

Apparatus and Method of Procedure

The accompanying diagram shows the details of the simple apparatus employed (Fig. 1). The operation was carried out in this manner; one man submerged the filter leaf, and, at the instant a stop-watch was clicked, opened the valve (a quick-action, gate type). The other operator timed the operation and controlled the vacuum. At the end of the predetermined time, the leaf was quickly removed from the mix, and the adhering cake subjected to the vacuum for 9 seconds. The volume of the filtrate and the weight of the cake were then recorded, and the amount of solids in each determined.

Data and Method of Calculation

The table shows the original data and results based on them. Column 4 gives the solids content of the white water used; X_1 contained 0.083 per cent bone dry solids; X_2, 0.935 per cent; X_3 0.140 per cent; X_4, 0.163 per cent; X_5, 0.116 per cent; X_6, 0.130 per cent. The filter mix was made up by adding a definite weight of sweetener to a weighed volume of white water. For example, in run No. 15, 600 grams of sweetener containing 4.40 per cent solids were added to 12 pounds of white water (X_3). From these weights and analyses, the results listed in columns 6 and 7 were calculated as shown below.

Column 5 indicates the kind of sweetening stock used. The letter "A" here and elsewhere in this paper is the symbol for stock taken before the jordan engine; the letter "B" similarly indicates stock taken after the jordan. The grade and relative freeness of the sweetness used are given below:

A_1	Bond	13.2 seconds
B_1	Bond	23.4 seconds
A_2	Ledger	16.2 seconds
B_2	Ledger	26.4 seconds
A_3	Linen	16.8 seconds
B_3	Linen	29.4 seconds

The freeness test was not on any standard basis, but was a purely arbitrary one used in the beater room of the Eastern Manufacturing Company. Its use was here permissible since the relative freeness of "A" and "B" stuff was desired rather than their absolute freeness as given by some standard tester.

Discussion of Results

(a) Fig. 3 gives, graphically, the results of the runs made to determine the effect of change in concentration of the filter mix. It is to be expected that increase in concentration will decrease the capacity and increase the efficiency of the filter, since the thicker cake offers more resistance to flow, and gives a more effective medium to entrap the short fibers in the white water. The experimental results bear out those expected; and also give rough quantitative values that may be of interest to the plant engineer concerned with increasing either the capacity or efficiency of his filter unit. Thus, it can be stated, that for un-jordaned sweetening stock (A) a change of consistency from 0.35 per cent solids to 0.75 per cent (the practical limits) will increase the overall efficiency 4 per cent at the expense of a 16 per cent decrease in capacity. Similarly, for jordaned stock (B), the same increase in concentration gives a 4 per cent increase in overall efficiency with but a 10 per cent decrease in flow.

(b) In Fig. 3 are plotted the results of the runs made with time as the variable. It can be readily seen that the capacity falls off very rapidly with increasing time of filtration from 0.1

ORIGINAL DATA

Date	Run No.	Kind of screen	Kind white water	Kind sweetener	Ratio: Solids in sweetener / Solids in W. W.	% Solids in mix	Vacuum in " Hg.	Temperature, °F.	Time of filtration, mins.	Volume filtrate in c.c.	% Solids in filtrate	Weight filter cake in gms.	% Solids in filter cake	Thickness cake in mm.	Per Sq. Ft. per Hour: Pounds filtrate	Gallons filtrate	Pounds solids in filtrate	Pounds cake	Pounds solids in cake	Gals. white water handled	Efficiency of screen	Efficiency on W. W. basis
3/22/28	1	Canvas	X_1	A_1	3.34	.338	9	51	.18	140	.0059	Neg.	...	...	926	111	.055	...	...	104.5	98.25	92.4
	2	Wire	X_1	A_1	3.34	.338	9	51	.18	1570	.0242	34.0	14.6	...	10370	1240	2.51	224	32.8	1170	92.85	69.1
	3	Wire	X_1	A_1	7.71	.625	9	51	.18	1380	.0210	47.5	16.8	...	9130	1091	1.92	314	52.7	966	96.64	71.4
	4	Wire	X_1	A_1	9.85	.76	9	51	.18	1330	.0201	50.5	19.1	3.60	8800	1051	1.77	334	63.7	887	97.36	71.2
	5	Wire	X_1	B_1	3.34	.338	9	52	.18	1160	.0227	18.0	19.7	1.25	7670	917	1.74	119	23.4	865	93.28	71.0
	6	Wire	X_1	B_1	7.63	.626	9	52	.18	1020	.0219	29.0	20.6	2.00	6750	808	1.48	192	39.5	710	96.50	70.0
	7	Wire	X_1	B_1	9.85	.76	9	52	.18	1080	.0188	41.0	19.7	3.00	7150	855	1.34	271	53.4	720	97.52	73.2
	8	Wire				.80	9	52	.18	1060	.0170	40.5	19.5	3.00	7010	839	1.19	268	52.3	706	87.88	75.7
	9	Canvas	X_2	None	0	.0935	9	52	1.00	360	.0017	Neg.	...	...	428	51.1	.007	...	...	51.1	98.3	98.3
	10	Wire	X_2	None	0	.0935	9	52	.18	1880	.0628	3.0	19.5	...	12420	1486	7.81	19.8	38.6	1486	32.9	32.9
	11	Wire	X_2	None	0	.0935	9	52	1.20	2750	.0387	5.0	16.6	...	2720	325	1.05	4.95	.82	325	58.7	58.7
	12	Canvas	X_2	None	0	.0935	16	52	5.00	1160	.00386	Neg.	...	...	276	33	.010	...	...	33	96.2	96.2
3/23	13	Wire	X_3	A_2	3.46	.56	9	50	.11	1150	.0354	30.5	19.6	2.30	12420	1486	4.40	330	64.7	1344	93.68	72.0
	14	Wire	X_3	A_2	3.46	.56	9	50	.18	1440	.0353	38.5	19.1	2.75	9510	1140	3.36	254	48.5	1030	93.70	72.1
	15	Wire	X_3	A_2	3.46	.56	9	50	.36	1780	.0310	50.5	18.2	3.12	5880	704	1.82	167	30.4	635	94.47	75.5
	16	Wire	X_3	A_2	3.46	.56	9	50	.72	2405	.0210	73.5	16.4	5.00	3970	475	.83	121	19.8	429	96.26	83.5
	17	Wire	X_4	B_2	3.01	.606	9	50	.11	820	.0358	22.5	20.2	1.75	8870	1060	3.17	243	49.1	960	94.10	71.8
	18	Wire	X_4	B_2	3.01	.606	9	50	.18	920	.0340	26.0	19.9	1.87	6070	726	2.06	172	34.2	656	94.40	77.7
	19	Wire	X_4	B_2	3.01	.606	9	50	.36	1280	.0152	40.5	16.9	2.58	4230	505	1.06	134	22.6	458	95.85	83.5
	20	Wire	X_4	B_2	3.01	.606	9	50	.72	1745	.0190	72.5	13.0	5.10	2960	354	.56	120	15.6	320	96.87	87.5
	21	Canvas	X_4	A_2	2.89	.59	9	50	.72	450	....	Neg.	...	...	743	88.9	...	...	...	81.4	....	...
3/27	22	Wire	X_5	A_3	4.6	.584	15.6	60	.30	1480	.0322	32.5	24.3	2.75	5870	701	1.89	129	31.4	635	94.49	69.4
	23	Wire	X_5	A_3	4.6	.584	2.6	60	.30	1350	.0318	38.5	20.1	3.00	5360	640	1.71	153	30.8	580	94.56	69.6
	24	Wire	X_5	A_3	4.6	.584	9.7	60	.30	1460	.0330	36.5	22.2	2.63	5800	694	1.91	145	32.2	628	94.35	68.6
	25	Wire	X_5	A_3	4.6	.584	20.9	60	.30	1620	.0429	34.5	26.4	2.75	6430	769	2.76	137	36.2	695	92.66	59.1
	26	Wire	X_5	A_3	4.6	.584	16.2	60	.30	1560	.0280	38.5	23.6	2.82	6190	740	1.73	153	36.1	670	95.21	73.4
	27	Wire	X_5	B_3	4.6	.584	21.3	60	.30	1150	.0350	23.0	26.7	2.22	4560	545	1.60	91.4	24.4	494	94.00	66.7
	28	Wire	X_5	B_3	4.6	.584	4.2	60	.30	1020	.0354	27.0	21.2	1.90	4050	484	1.43	107	22.7	438	93.94	66.4
	29	Wire	X_5	B_3	4.6	.584	13.3	60	.30	1080	.0323	21.3	26.6	2.00	4290	513	1.38	85.5	22.7	464	94.47	69.4
	30	Wire	X_5	B_3	4.6	.584	7.4	60	.30	1075	.0312	26.0	22.3	1.87	4270	510	1.33	103	23.0	461	94.66	70.4
	31	Wire	X_5	B_3	4.6	.584	9.5	60	.30	1080	.0280	24.5	22.7	2.00	4290	513	1.20	97.4	22.1	464	95.20	73.4
	32	Wire	X_5	A_3	4.6	.584	12.7	60	.30	1640	.0302	35.5	25.0	3.00	6510	778	1.96	141	35.2	704	94.83	71.4
	33	Wire	X_5	A_3	4.6	.584	13.0	60	.30	1480	.0276	32.5	23.7	2.58	5870	702	1.62	129	30.6	635	95.28	73.8
	34	Wire	X_6	A_3	4.06	.594	19.1	62	1.00	2145	.0230	36.0	29.1	3.75	2850	305	.58	42.8	12.5	276	96.13	80.7
	35	Wire	X_6	A_3	4.06	.594	14.2	62	1.00	2365	.0134	42.5	26.3	4.2	2815	336	.39	50.6	13.3	304	97.74	88.2
	36	Wire	X_6	A_3	4.06	.594	4.6	62	1.00	2175	.0178	50.5	23.8	4.38	2585	309	.46	60.1	14.3	280	97.00	84.9
	37	Wire	X_6	A_3	4.06	.594	10.9	62	1.00	2090	.0186	41.5	26.2	4.13	2485	298	.462	49.4	12.9	269	96.87	84.2
	38	Wire	X_6	B_3	4.06	.594	13.4	62	1.00	1575	.0250	35.5	20.9	2.5	1872	224	.468	42.2	8.83	202	95.80	78.7
	39	Wire	X_6	B_3	4.06	.594	18.1	62	1.00	1410	.0380	19.5	30.3	2.5	1677	200	.637	23.2	7.03	182	93.61	67.6
	40	Wire	X_6	B_3	4.06	.594	5.0	62	1.00	1430	.0191	30.5	25.0	2.62	1700	203	.325	36.2	9.05	184	96.78	83.7
	41	Wire	X_6	B_3	4.06	.594	10.4	62	1.00	1430	.0234	34.5	19.6	2.50	1700	203	.398	41.0	8.04	184	96.06	80.1

Sample Calculation

For Run Number 15:

Data:

Area of screen	16.0 square inches
Time of filtration	0.36 minutes
White water in mix	12.0 pounds
Solids in white water X_3	0.140 per cent
Solids in sweetener	4.40 per cent
Sweetener in mix	600.0 grams
Volume of filtrate	1780.0 cubic centimeters
Solids in filtrate	0.0310 per cent
Weight filter cake	50.5 grams
Solids in cake	18.2 per cent

Calculations:

$12 \times 0.0014 = 0.0168$ pound solids in white water.

$1.32 \times 0.044 = 0.0581$ pound solids in sweetener.

$0.0581/0.0168 = 3.46$ = ratio of solids in sweetener to solids in white water (Column 6).

$(0.0168 + 0.0581)/(12.0 + 1.32) \times 100 = 0.56$ per cent solids in mixture of white water and sweetener (Column 7).

$(12.0 - 0.0168)/(13.32 - 0.749) = 0.905$ = fraction of filtrate from white water.

BASIS: 1 square foot of filtering area per hour:

$\frac{1780 \times 60 \times 144}{454 \times 0.36 \times 16.10} = 5{,}880$ pounds of filtrate

$5{,}880/8.33 = 704$ gallons of filtrate

$5{,}880 \times 0.000310 = 1.82$ pounds solids in filtrate

$\frac{50.5 \times 60.0 \times 144}{454 \times 0.36 \times 16.0} = 167$ pounds filter cake

$167 \times 0.182 = 30.4$ pounds solids in cake

$5{,}880 \times 0.905 = 5{,}310$ pounds white water through screen

$5{,}310 \times 0.00140 = 7.44$ pounds solids enter mix with white water

$\frac{7.44 - 1.82}{7.44} \times 100 = 75.5$ per cent efficiency on white water basis

$\frac{0.56 - 0.031}{0.56} \times 100 = 94.47$ per cent efficiency of screen

to 0.4 of a minute, after which it drops off slowly. Here, as in (a), a balance must be struck between gain in efficiency and loss in capacity; and the operators should suit their individual needs.

(c) The effect of variation in the intensity of vacuum is shown in Fig. 4. It is surprising to note that a great change in vacuum makes such a small change in capacity. Thus, for unjordaned sweetening stock (A), a 400 per cent increase in vacuum adds only 20 per cent in capacity. This result is of importance to those operators who wish to know whether or not the installation of expensive pumps to supplement the vacuum from the ordinary barometric leg would be justified by the increased capacity of the system. From these data it is obvious that any such expenditure is undesirable since the flow increases very slowly with increasing vacuum, and the efficiency begins to drop after a vacuum of 12 inches has been reached.

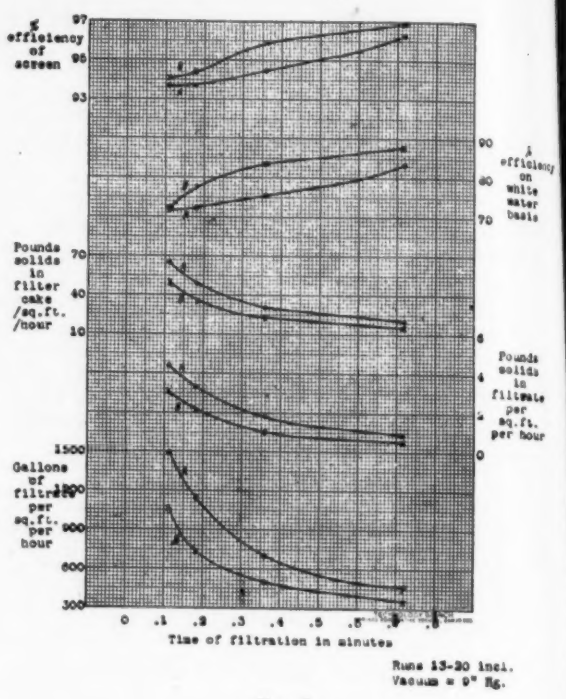
% efficiency of screen
% efficiency on white water basis
Pounds solids in filter cake /sq.ft. /hour
Pounds solids in filtrate per sq.ft. per hour
Gallons of filtrate per sq.ft. per hour
Time of filtration in minutes
Runs 13-20 incl.
Vacuum = 9" Hg.

FIG. 3

(d) From the data as shown in the plots, it can be seen that the freer the sweetening stock in the filter mix, the greater the capacity, and, in general, the lower the efficiency. Thus, in all cases, unjordaned (A) stock gave greater capacity in filtration than the jordaned (B) stock—with a lower efficiency in most of the runs. These results are to be expected in the light of the

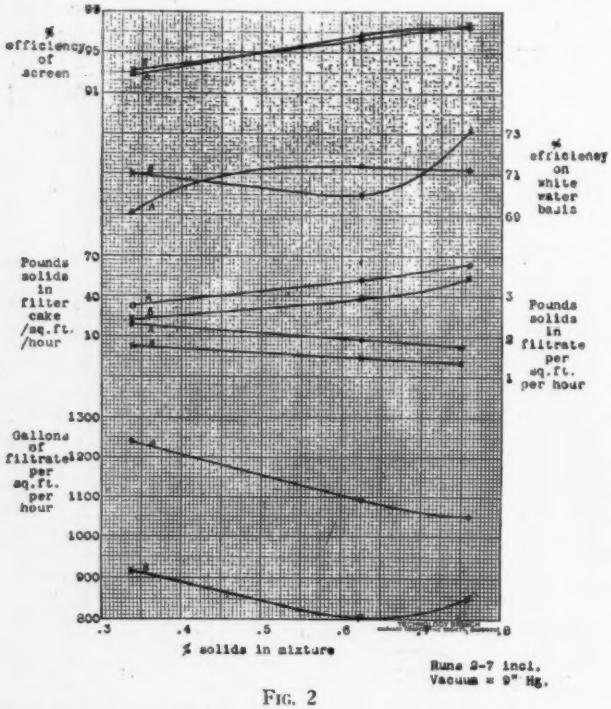
% efficiency of screen
% efficiency on white water basis
Pounds solids in filter cake /sq.ft. /hour
Pounds solids in filtrate per sq.ft. per hour
Gallons of filtrate per sq.ft. per hour
% solids in mixture
Runs 2-7 incl.
Vacuum = 9" Hg.

FIG. 2

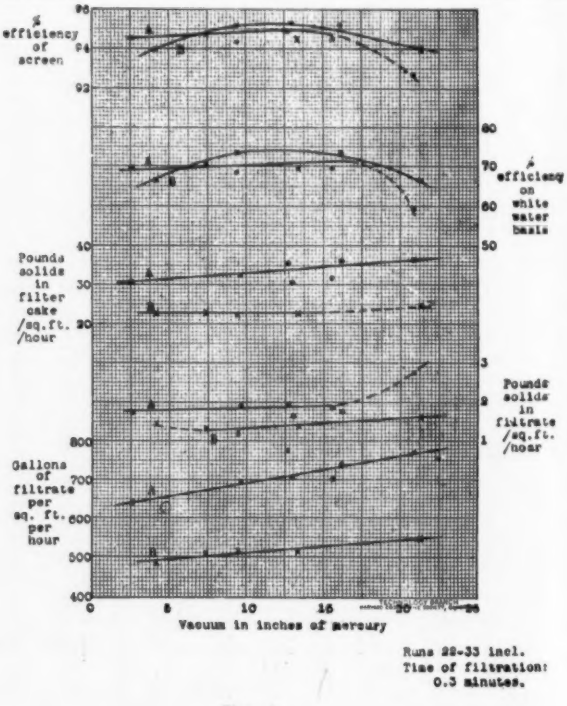
% efficiency of screen
% efficiency on white water basis
Pounds solids in filter cake /sq.ft. /hour
Pounds solids in filtrate /sq.ft. /hour
Gallons of filtrate per sq. ft. per hour
Vacuum in inches of mercury
Runs 28-33 incl.
Time of filtration: 0.3 minutes.

FIG. 4

hydrating and macerating action of the jordan engine on paper stock. Here, again, a balance must be struck between capacity and efficiency, except in those mills where colors are frequently changed, when only jordaned stock may be used, as previously explained under the section on plant operation.

(c) It is important to bear in mind that, with certain installations, it is possible to increase the depth of the filter mix, thus gaining additional filter area, which, obviously, gives additional capacity. The depth cannot be increased beyond the point where the filter cake will be entirely removed by the mechanical doctor, drying process. The drying must be complete enough so that the filter cake will be entirely removed by the mechanical doctor, water sluice, or air blast.

In many mills the drying cycle starts too early, with resultant loss in capacity. These plants should increase the height of the liquid level in the filter box. If additional capacity is unnecessary, the speed of rotation should be decreased to the point where the capacity at the new level is the same as the former flow. These changes will increase the efficiency without affecting the capacity, since the efficiency is aided by increased time of filtration (Fig. 3), and the capacity remains constant due to the addition of new filtering area.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Paper Testing

Opacity Determination with the Ives Tint Photometer. R. H. Doughty. Forest Products Lab., Madison, Wis. Paper Trade J. 87, No. 19, 66-69 (Nov. 8, 1928).—The contrast-ratio method as described by Sammet gave values of 0.88 to 0.95 (average 0.91) for 40 samples of commercial news print. A few of the more important factors that might influence the values obtained by this method have been investigated. The effect of varying thickness was found to follow a mathematical low. The character of the paper surface affects the results. It is advisable to use one color filter (preferably green) for all measurements that are to be compared directly. Exact comparison of the opacity values of differently colored paper is not advisable. The results obtained were in satisfactory agreement with those of other methods, including that using the Bureau of Standards instrument, when a suitable black background was employed. The contrast-ratio method is simple, reproducible, and accurate, provided proper care is exercised in making the measurements. Through mathematical relationship determined between the logarithm of translucency and the thickness, it is possible, with other factors such as color and finish nearly constant, to study opacity as a property of the material of which a sheet is made rather than of the sheet itself.—A.P.-C.

Change in Breaking Length Stretch Folding (and Bursting) Strength and Degree of Sizing with Degree of Finish of Paper. V. Possaner. Papierfabr. 26, 453-462 (1928). Seventeen papers ranging from news print to rag bond were tested in the machine-finished condition and after 3, 6, 12, and 18 passes through a calender with a pressure of 150 kilograms per centimeter. A commercial finish was given by 12 passes. The results are presented in detailed graphical and tabular form. Papers less than 60 grams per square meter in weight or those containing much groundwood show but little increase in strength with increasing finish. Thicker papers or those containing less groundwood show 5-6 per cent increase in breaking length. Heavy papers, or those made of pure cellulose, whether wood pulp, straw pulp or rags, show increases of 9-11 per cent. Stretch generally increased 20-30 per cent, folds 30-50 per cent, occasionally 100 per cent or more. Burst increased 15-35 per cent. A more free stock, or one containing more ash, gave a smaller increase in strength values. The degree of sizing decreases to 7-10 per cent of its original value on calendering. This is ascribed to breaking of the thin film of size which coats the fibers; a parallelism is draw with glaze cracks in pottery. Repeated calendering of a few samples showed that the strength finally reached a constant high value and did not tend to decrease.—C.J.W.

Influence of Atmospheric Moisture on the Bursting Strength of Paper. Charlotte Boermer. Papierfabr. 26, 521-522; Wochbl. Papierfabr. 59, 910-911 (1928).—Of 13 samples tested, all showed an increase in burst (Mullen) on decreasing the relative humidity from 90 to 65 per cent. On decreasing it further to 40 per cent, 8 samples showed higher strength than at 65 per cent, 6 somewhat lower.—C.J.W.

Self Recording Strength Tester. Fritz Rühlemann. Papierfabr. 25, 577-581 (1927).—The Rühlmann apparatus for determining the tensile strength and elasticity of single fibers photographically is described.—C.J.W.

Influence of Fiber Character and Beating Upon the Strength Properties of Paper, Particularly Sulphate Paper. Gosta Hall. Korsnas Wood Pulp Mills, Gefle, Sweden. Svensk Pappers-Tid. 31, 321-325, 357-361, 393-397, (1928), World's Paper Tr. Rev. 90, 1246, 1248 (Oct. 12, 1928).—Better qualities of both sulphite and sulphate paper have been demanded in recent years. The call for better qualities of sulphate pulp dates from the manufacture of kraft paper in the Mississippi district. The Mississippi kraft pulps have a weaker and more brittle fiber than the Scandinavian and Canadian pulps. Pulp and paper made from yellow pine has monopolized the less exacting market and forced Scandinavian kraft pulp to a higher level. Increasing interest in paper testing in the U. S. is a contributing factor in the demand for better pulp qualities. International testing methods are in general confusion. To create a testing method which will give uniform results of satisfactory interpretation it is necessary to agree on standards for: (1) the procedure used in converting pulp into paper (defibration, beating and sheet making), (2) the beating condition (degree of beating) of the fiber at which the paper shall be formed and the strength determined, and (3) the strength properties of the paper which shall be used to characterize the strength of the pulp. Some technical men contend that ball mill beating is not consistent with mill practice. Determinations made by the author on sulphate pulps used in American mills show that the ball mill tests ranked the various pulps exactly in accordance with the strength of papers made commercially from the pulps. Sweden is perfecting laboratory machinery for papermaking to be used in Strength testing of woodpulp. Tensile strength, bursting and folding endurance increase considerably with continued beating, whereas the tearing strength usually decreased slowly. In Europe the tensile strength and in the U. S. the bursting strength are considered a measure of the strength of a paper. These two properties usually run as parallel functions of the beating condition of the fiber, although the bursting strength is somewhat more sensitive to changes in beating condition and the brittleness of the fiber.—A.P.-C.

Paper Specialties

Lignocell Paper. Von Possanner. Papierfabr. 25, 601-603 (1927).—The "lignocell" process for manufacturing pulp is a

modification of the method for producing steamed mechanical pulp. Advantages of "lignocell" compared to mechanical pulp are (1) the stock is lighter colored, permitting lighter dyeings; (2) opacity is good, allowing the manufacture of thinner papers; (3) conversion to paper is easier; (4) fibers possess superior felting qualities; and (5) the fibers are practically acid free, which is not the case with mechanical pulp fibers. "Lignocell" paper has a good feel and crackle and possesses a tearing strength very close to that of paper made from chemical wood pulp.—C.J.W.

Parchment Paper and Its Evaluation. H. Serger. Pharm. Zentralh 69, 514-518 (1928).—In addition to determining the physical characteristics, the content of water, water-soluble and insoluble mineral ingredients and sugar is ascertained. The results obtained in the examination of 10 different samples are presented in tabulated form.—C.J.W.

Parchment, Glassine and Imitation Parchment Papers. Fritz Hoyer. Kunststoffe 18, 154-156 (1928).—Parchment (pergament) paper is produced by a suitable surface treatment with chemicals. Glassine (pergamyn), on the other hand, is produced by appropriate beater treatment. Imitation parchment (Pergamentersatz) is produced similarly to glassine but lacks its transparency, glassiness, water and greaseproof qualities, etc., the similarity to glassine being attained by high calendering and being only superficial. All of these papers are used for wrapping foodstuffs and greasy materials. Their manufacture is described.—C.J.W.

Machine for Making Rolls of Wallpaper. W. F. Marresford. U. S. pat. 1,681,046, Aug. 14, 1928.—The object of the invention is to provide a machine by which the paper web may be quickly wound into successive rolls, the successive rolls being severed from the paper strip after they are formed and carried away automatically and continuously until the entire web has been used. No mandrel is used, the core being formed by folding over the strip at the end and rolling this fold to form a core of two thicknesses of material. After it has been formed, the roll is severed from the web in such a manner as to leave in the central space about which the roll-forming rollers are grouped sufficient material for the formation of a successive roll. Means are provided whereby the roll-forming rollers are separated to release the formed roll and the released roll is severed from the web, and the released roll is rotated to wind up the portion of the web between the roll and the line of severance. The completed roll is further rotated to prevent it from unwinding. Means are provided for trueing the successive rolls so that their ends will be in line.—A.P.-C.

Process for the Manufacture of Fiber Board. R. A. Marr. U. S. pat. 1,680,896, Aug. 14, 1928.—An amount of pulp (preferably cane material which has been digested under pressure in an aqueous solution containing preferably zinc sulphate, sodium sulphate and potassium sulphate) containing the desired weight of dry pulp is run into a box shaped sieve, which preferably has a bottom composed of fine wire screening (e.g., of 70-mesh and vertical sides). On the top of the wire, before introducing the pulp, may be placed a coarse fabric. The pulp is then subjeced to suction from below and at the same time the box is given a shaking sideways motion to improve the felting. The suction is continued till practically all the free water has been removed. A cloth is then placed on top of the pulp and the sides of the box are lifted off. The entire package containing the pulp with cloth above and below is wrapped in a fine-mesh screen, placed in a perforated tray with a rigid, perforated bottom, covered with a board or other rigid member, and subjected to heavy pressure. The damp pulp is then placed between rigid perforated plates which are clamped together and run through a drying oven. If desired any suitable waterproofing agent may be applied to the board before drying, or the dried board may be dipped into a solution of a waterproofing agent and again dried between the rigid perforated plates. A suitable covering such as paper may be glued on one or both sides of the pulp board in the usual manner.—A.P.-C.

Paper Board Manufacturing Problems. Clark C. Heritage. Forest Products Lab. Madison, Wis. Paper Tr. J. 87, No. 26, 48-49 (Dec. 27, 1928).—A statement of the field of work of the newly formed TAPPI paper board committee and of the possible projects to be undertaken.—A.P.-C.

Manufacture of Cardboard. G. E. Heyl and Hycolite Liquid Wallpaper Mfg. Co. Ltd., Eng. pat. 294,442, Jan. 26, 1928.—Fibrous pulp or waste paper is finely comminuted in a dry condition in a high speed disintegrator, and the resulting powder is mixed with 30 to 50 per cent of water and 4 to 8 per cent of a binder such as dextrin. This paste in then beaten in a colloid mill and formed into sheets.—A.P.-C.

Coating Paper with Bituminous Substances. Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. Fr. pat. 635,968, June 14, 1927.—Paper pulp is mixed with a gel of asphalt or other bituminous substance till from one to two times the weight of the paper pulp is absorbed. Waterproofing materials may be added. The gel is prepared as described in Fr. pat. 614,819.—A.P.-C.

Transparent Papers: Real and Imitation Compared. James Scott. Paper Maker and Brit. Paper Tr. J. 76, 479-483 (Nov. 1, 1928).—A description of the differences in the microscopical appearance of true and imitation transparent papers, illustrated by means of micro-photographs.—A.P.-C.

Crinkled Paper. Wm. A. Lorenz assignor to The Otaka Fabric Co: U. S. pat. 1,686,388, Oct. 2, 1928.—In order to make paper elastic in all directions, a wet paper web is crinkled laterally, and longitudinally extending grooves are formed in the crinkled paper while it is still wet.—A.P.-C.

Process for Crinkling Impregnated Papers. H. C. Cleis. Fr. pat. 642,251.—The paper is given three coats of glue (400 g. in 3 l. of water), oil varnish (1 l. of oil varnish mixed with 70 g. of drier and 0.25 l. of spirits of turpentine), and paste (500 g. of a mixture of starch and gum arabic dissolved in 1.5 l. of water), respectively, and dried thoroughly after the application of each coat. The crinkles are produced by applying pressure with the fingers to the back of the coated sheet, and are then widened by suitably heating. They are rendered more apparent by applying a paste containing 20 g. carbon black, 170 spirits of turpentine, 105 g. linseed oil and 70 g. drier. The paper is finally washed in lukewarm water to remove all the black except that portion which is in the crinkles.—A.P.-C.

Paper Filter Packs. Henry S. Hele-Shaw and Jos A. Pickard. Can. pat. 281,702, July 17, 1928. Paper filter packs are prepared for edge filtration by treating the paper with any of the following substances, introcellulose, acetylcellulose, rubber, chlorinated rubber, celluloid, casein, cellulose esters, synthetic or natural resin, paraffin, hardened gelatin, asphaltum, bakelite and similar formaldehyde condensation products,—A.P.-C.

Waterproofed Paper. James Reid. Can. pat. 282,444, Aug. 14, 1928.—Close-grained paper is waterproofed without destroying its flexibility and strength by quickly passing the paper through a bath of mineral rubber (a bituminous product) 100 parts, scale wax 10 parts and Montan wax 2 parts, the mixture being heated above 350° F. (say 450° F.), and quickly stripping the superfluous coating and lowering the temperature of the finished prouuct.—A.P.-C.

Ornamentation of Paper Surface. Michel Rudie assignor to W. V. Dawson, Ltd., Can. pat. 283,047, Sept. 4, 1928.—The surface of paper is ornamented by applying dyes of chemically repellent nature in contiguous relation and enabling the dyes to build up a border of heightened color outlining the division between the color areas and applying to said color areas self-crystallizing compounds of metallic sulphates and preventing the crystallization at certain portions of the surface by previous chemical treatment.—A.P.-C.

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Burden Variance in Relation to Production

By George F. Mellon[1]

An Industrial plant in itself, even though supplied with the best of equipment and manned by the most capable personnel, is a thing inert and lifeless. That which gives life and vitality to a manufacturing enterprise is work—something to produce. Production stirs the inert organism into action, starts the chimneys of industry smoking and the wheels of industry turning. How much work can a given plant turn out? What are the latent possibilities of its organization? Ordinarily, a plant is idle sixteen hours out of each twenty-four, one and one-half days out of each seven. The full measure of plant capacity is taken only in times of emergency and stress when we key production up the last notch and extract the last ounce of usefulness from our facilities. Otherwise, we take an even, steady gait of normal activity, below the limit of ultimate capacity, above the limit of apparent idleness. This normal or middle ground of possible capacity is an ever present fact in industry and should be recognized as the starting point in solving problems of industrial costs. Normal production is the standard above which an organization will register in times of unusual activity and below which it will drop in times of depression.

Subject to Many Interruptions

The flow of work in any industrial plant is subject to many interruptions. Material shortage, labor trouble, transportation difficulties, equipment delays, general business conditions and a thousand one things affect its volume. Interruptions and delays in production, however, are not accompanied by a proportionate decrease in expenses. Depreciation, taxes, insurance and rent on the buildings still continue. They still require practically the same amount of heat, light and maintenance. In the same way, fixed charges on equipment continue unabated. Maintenance charges, in fact, may actually increase due to taking advantage of slack times to bring the condition of equipment up to standard. Neither will wages be decreased proportionately. While theoretically you can discharge your men, actually you will find odd jobs for the best of them at least. Also in order to hold your organization together, you must retain your foremen, superintendents and executives. Thus a considerable portion of your expenses continue almost unabated whether or not you do a dollar's worth of business. Other expenses, of course, such as some forms of labor, supplies, power, etc., go up and down at rates very closely corresponding to changes in the production rate.

It can thus be seen that expense is made up of a large number of elements, some of which vary in general correspondence with the rate of production and some of which do not. In other words, total expense is divisible into two general classes—Constant Expense and Variable Expense. The first division, Constant Expense, may be said to be made up of those expense items that are necessary for the mere existence of the business; while the latter division, Variable Expense, includes all items connected with the activity of the business.

Largest Single Factor of Difficulty

Because of the presence of this constant factor, the ratio that total expense bears to the total of any direct element of cost that is used as a basis of burden distribution is a variable whenever the production rate changes. This fluctuation in expense follows variations in production together with the fact that the fluctuation is not proportional to the variation in production causing it, is the largest single factor which makes the distribution of expense difficult. In our present state of industrial development, interruptions in production are an ordinary incident of business. They entail a small cost that must be passed on to the consumer if business is to prosper. Until quite recently, the true significance of the effect of variations in production on cost was not clearly perceived.

According to the older methods of cost accounting, it was common practice to apply all of the burden accruing during a given period to the goods produced during that period. Under such a system, whereby current expense is charged to current production, costs inevitably rise in periods of subnormal activity. Such costs are out of proportion to the true costs of production and have no relation to what the market will bring. Under such a condition two opposite tendencies develop. If the business man is a firm believer in his cost system and refuses to accept work except on the basis of the high costs that it shows, he will be unable to meet competition. Fortunately the average business man is somewhat skeptical and feeling that there is something wrong with his cost system will ignore cost figures that indicate absurd conclusions. In this case, the cost system fails when it is most needed and offers no guide to an intelligent sales policy in the most hazardous of business periods. In order to overcome the obvious defects of applying the expenses of not doing business to a reduced activity, it is important, that we develop a theory of costs that will not break down under abnormal conditions.

A Simple Hypothetical Case

In order to get a correct view of the fundamental principles involved, suppose that we consider a very simple hypothetical case.

Suppose that a manufacturer owns three identical plants, with equipment adequately balanced, for normal production, making

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exactly the same product—one located in Buffalo, one in Toledo, and one in Chicago—that they are all running at normal capacity and are managed equally well. Under these conditions, the amount of expense as well as the total cost per unit of product would be substantially the same in each of the three factories. But suppose that business suddenly falls off to one-third its previous volume and the manufacturer shuts down the plants in Buffalo and Toledo and continues to operate the one in Chicago exactly as it has been run before. The product from the Chicago plant would have the same cost that it previously had but the expense of carrying the two idle factories might be so great as to take all the profits of the business as a whole. In other words, the profit made from the Chicago plant would be offset entirely by the losses by the non-operation of the Buffalo and Toledo plants.

If these plants instead of being located in three different cities were all in the same city, a similar condition might also exist in which the expense of the two idle plants will be such a drain on the business that they would offset any profit made by the plant operated. Instead of considering these three plants as being in different parts of a city, they might be considered as being within the same yard. The same conditions would obtain. Finally, we might consider that the walls between these three factories were removed and that the three factories were merged into one plant, the output of which had been reduced to one-third its normal volume.

Neither the location of the three factories nor the final merging of the three into a single plant changes the fundamental principles involved. In such a case would it not then be proper to charge to this product only one-third of the expense charged when the plant was running at full capacity? Reasoning from this very simple case, can we not deduce the theory that the expense chargeable to the output of a factory should bear the same ratio to the expense necessary to run the factory at normal capacity, as the output in question bears to the normal output? Of course a method of cost accounting does not reduce expense but it may show where the expense properly belongs and gives a more correct understanding of the business.

Has Decided Advantages

The distribution of expense on the theory just stated or by so-called normal burden rates has decided advantages. Chiefly, it reduces costing in different periods to a common basis and enables comparisons of operating efficiencies to be made. Also, it gives a reasonable basis for establishing sales price regardless of the degree of plant activity. Under this method of distribution, all of the expenses of operating a factory are not applied to costs when the plant runs below its normal capacity. Careful consideration will show that insofar as this expense is due to idleness, it is not a charge against production but is a business expense chargeable to profit and loss. Of course such expense, whether it appears in cost or is carried to profit and loss must be covered by sales price over a period of years or the business will go into bankruptcy. Conversely, in period of over-normal activity, burden will be overabsorbed—a greater amount will be charged to production than is actually incurred.

If the normal for a given business could be accurately determined, underabsorbed and overabsorbed burden would exactly equalize over a period of years. If the burden overabsorbed in years of prosperity were used to build up a reserve against which the underabsorbed of lean years could be charged, the profit and loss account would never be affected by burden variance due to changes in production rate. This, of course, is an ideal solution.

In order to establish normal burden rates, it is necessary to determine two normal figures—normal capacity, which in a plant manufacturing a diversified product must usually be expressed in hours, and normal expense. The determination of these figures is not an easy matter. They require a long look behind and a far look ahead. It is not sufficient to accept the operations of the previous year as standard.

In the determination of normal capacity we have two somewhat divergent methods to consider. The first is the so-called practical capacity which means the actual output that we hope to attain if the plant had all the business that it could handle. This is determined by taking the theoretical capacity, or total working hours in the year, and deducting an allowance for operating difficulties such as breakdown, absenteeism, unbalanced conditions of the business, etc. A normal so established would run from perhaps 80 per cent to 90 per cent of theoretical capacity. Such a normal base will result in under-absorbed burden in all except exceptionally prosperous years.

Older Method Seems More Logical

The other method, which seems to be the more logical, is to establish the normal on the basis of both possible capacity and normal demand. In other words a normal so established is a compromise between practical capacity and the expectations of the business over a period of years. In most business concerns a chart of the demand for its products would probably be an undulating curve—the peaks representing prosperity, the valleys depression. A cost curve based on applying current overhead to production would also go up and down with the variation in demand, the trend, however, being opposite to that of the demand curve in most lines of business. The idea of the normal based on projected business is to absorb all of the overhead over a complete cycle, from one peak of prosperity through the valley of depression to the next peak. This reduces the cost curve to a straight line.

One criticism of the application of burden by normal rates is that in active periods the product is costed at more than actual and that inventory values are thus inflated. This tendency, however, is small compared with the inventory inflation that takes place in a subnormal period when total expense is applied to restricted activity by current burden rates. Any variations in inventory valuation caused by the use of normal burden rates will balance out over a period of time.

Most of our cost systems are far too rigid. We split our business operations into years and treat each year as though it were separate and unrelated to the years that precede and follow it. Actually, no sharp cleavage exists. The fact that we close our books annually does not mean that production stops. The cost of production is a continuous flow. Year merges in to year, one dependent upon and connected with the other. Cost systems should recognize this continuity of time where the condition of any single year may or may not represent normal production and demand. Normal expenses are determined on the basis of past experience corrected to normal activity. Expenses which are accidental should be eliminated. Every reasonable effort must also be made to allow for the trend of expenses over the coming period. The normal expense divided by the normal production of course gives the normal unit overhead charge to be used during the ensuing period.

As has been previously implied, it is very unlikely that any predetermined burden rates established will exactly absorb the expense accruing. There are two reasons for the variance which occurs. Production may be normal and the total of expense greater or less than normal; expense may be normal and the plant be operated at greater or less than normal capacity, or both expense and production rate may vary from normal figures.

Should Be Shown by Overhead Statement

For purposes of expense control it is highly important that the reasons for variance be clearly shown by the overhead statement. The determination of the amount of expense that should be incurred for a given volume of business is not easy and probably can never be worked out exactly. However, by gathering statistics on the expense of operation at varying volumes of production over a period of years, a reasonable estimate can be made.

The first step in such a determination is to group the various items of expense according to the relation they bear to the pro-

duction rate. It has been stated previously that expense could be divided into two general classes, constant and variable. It is necessary, however, to further subdivide the second class or variable expense. Some of the items that come under this classification vary directly with production while others bear some other relation to it. The ratio of an item of expense that fluctuates only partially with production to the production rate can be determined only by a careful study of expense data covering a considerable period. This gives us three classes of expense: Constant Expense consisting of such items as depreciation, taxes, insurance, executive salaries, and probably maintenance; Directly Variable Expense such as inspection, repairs to product, idle time and shop supplies; and Partially Variable Expense such as service department expense, clerical expense, and power if developed within the plant.

In order to determine the cause of burden variance the burden statements should be set up as described below. The statement is divided into sections as determined by the above classification. Following the name of each item of expense is given the normal expense for the period. In the next column is given the percentage relationship to the production rate. This is most conveniently stated by giving the percentage of normal expense that would obtain at 50 per cent normal production. This percentage figure would be 100 in the case of Constant Expense, 50 for Directly Variable Expense and some value between thes two for Partially Variable Expense. Next is given the standard expense for the percentage of normal operation obtained during the period. This standard expense is obtained as follows: In case of Constant Expense the standard will be the same as the normal; the standard expense for an item directly proportional to production will be the normal multiplied by the percentage of normal production attained; in the case of Partially Variable Expense, the standard expense will be the normal expense multiplied by the percentage factor determined by the following formula:

$$P=X+F\ (100-X)$$

where P—the percentage factor

X=the percent of normal production attained

$$F=\frac{C-50}{50}\ \text{(constant for any one item)}$$

C—the per cent relation of the item of expense under consideration at 50 per cent normal operation to normal expense.

This formula can very easily be chartered or values of P tabulated for different values of C and X.

To illustrate the use of this formula assume that a given item of expense is 80 per cent of normal at 50 per cent capacity operation. Then $F=\frac{80-50}{50}=.6$. Assume that the operation for the period at 75 per cent normal.

Then P= 75 x .6 (100—75)=90 per cent. If the normal value of this item of expense was $100, the standard for the period under consideration would be $90.

Actual Expense Incurred

The actual expense incurred is next set up. The difference between actual and standard expense gives an index to operation efficiency and the difference between standard and normal an index to the idleness factor.

The expenses as set up above are totaled for each department and carried to a summary sheet for the entire plant. Earned burden, the product of the distributing base times the standard burden rate in each department is shown on this summary sheet in addition to standard and actual burden. Variance is shown according to cause. Standard burden minus earned burden equals variance due to expense Variation. Actual burden minus earned burden equals total variation which of course also equals the sum of the other two.

The total variance is a profit and loss item and is usually carried directly to the profit and loss account. Undoubtedly as we gain more experience in setting normal burden rates and in predicting cyclical trends in business, the practice of carrying such variation to a reserve account will become more widely adopted.

In addition to giving more effective executive control over expense, the above method offers the best possible guide in the establishment of an intelligent sales policy, its value is most apparent in period of depression. Since this method permits an accurate estimate of production costs to be made at different degrees of activity, the effect of taking additional work at a given price can be definitely predetermined. Only in the light of such knowledge can an intelligent sales policy be pursued in such a period. In these periods it may be impossible to obtain business at prices based on normal costs but it might be obtained at a figure that would cover direct charges and absorb a part of fixed charges thereby reducing the total losses. Without a clear cut analysis and an understanding of the quantitative effect of variation of production rate on total expense such work cannot be undertaken with assurance.

Not An End in Itself

The method of treating burden variations in the manner indicated is not presented as a panacea for all our industrial ills. It cannot be too strongly emphasized that any method of cost accounting, in common with all other mechanisms of modern management, is not an end in itself. No system or method can perform the management function. Management is carried on through the initiative and judgment of each individual executive acting within the sphere of his authority and responsibility. All that any cost system can do is to furnish each executive with pertinent, accurate information upon which to base executive action. The adjustment of burden changes on the basis of a normal year is one guide to the establishment of policies that will help to stabilize prices and eliminate those wild fluctuations that end in business depressions.

Union Bag Reduces Working Force

HUDSON FALLS, N. Y., October 5, 1929.—Announcement was made this week by officials of the Union Bag and Paper Corporation that between thirty and forty employes would be laid off until further notice. Competition with Southern mills is so great and the cost of paper so low that this step has been deemed necessary by the corporation in order to continue in operation near capacity. The greater part of the reduction in the working force will be confined to the machine shops where all new work will be halted and a sufficient force to keep all machinery in first-class condition will be retained. A large number of the men who will lose their jobs due to the announcement are those who have been employed by the firm during the last year. It was learned that all employes who have been with the company for many years and are rated as efficient workers will be kept. A preference, first in seniority with quality of workmanship, will be given in cutting down the list of workers. Among the officials who have announced their retirement is Thomas Gitsham, superintendent of the bag factory, who has secured a similar position in a neighboring paper mill city.

Luncheon at Kalamazoo

KALAMAZOO, Mich., October 7, 1929.—Alex Macvie was host Saturday to a party of 15 Kalamazoo valley paper mill purchasing agents and superintendents. Luncheon was served at the Happy Huntsmen Club and was followed by a golf tournament over the Arcadia Brook course. Frank Brown of the Michigan Paper Company, Plainwell, won first prize.

Allied Paper Mills had as its guests Saturday a party of 25 salesmen and officials from the Dudley Paper Company, Lansing. They were afforded opportunity to inspect the King and Monarch divisions and then sat in on a demonstration of Allied made papers. Luncheon was served at the Park Club, with A. G. Gilman, president of the Allied Paper Mills presiding.

COST SECTION

COMMERCIAL STANDARDS FOR PAPER ADVOCATED

(Continued from page 23)

Standardization to the Printer"; William H. Rourke, of the Eno Paper Company, on "The Value of Paper Standardization in Handling City and Country Trade"; Oswald F. Marquardt, of Marquardt, Blake & Decker, Inc., on "Economic Value of Paper Specifications in the Distribution of Paper in Metropolitan Centers"; and others.

Names of Those Who Attended Meeting

Among those attending the conference were:

R. P. Andrews, R. P. Andrews Paper Company, Washington, D. C.

William H. Boesche, Consolidated Gas, Electric Light and Power Company of Baltimore, Baltimore, Md.; L. F. Boffey, "The Purchasing Agent," 53 Park Place, New York; Charles W. Boyce, American Paper and Pulp Association, 18 East 41st street, New York; P. H. Bull, Pejepscot Paper Company, 42 Broadway, New York.

Geo. F. Callahan, American Writing Paper Company, Holyoke, Mass.; Richard H. Campbell, Linton Bros. & Co., Fitchburg, Mass.; W. L. Chandler, Datalog, Ltd., 55 W. 42nd street, New York; Frederic C. Clark, 24 Pine street, South Manchester, Conn.; Grellet Collins, Dill & Collins Company, Richmond and Tioga streets, Philadelphia; Norbert A. Considine, Paper House of Pennsylvania, 32 North Sixth street, Philadelphia; Walter B. Crosson, H-K Advertising Service, 1718 Pennsylvania avenue, N. W., Washington, D. C.

C. H. Dodge, International Paper Company, 100 East 42nd street, New York; Edward Dowden, Nation's Business, 1615 H street, N. W., Washington, D. C.

Harold M. Early, International Paper Company, 100 East 42nd street, New York;Duane Eaton, Datalog, Ltd., 55 West 42nd street, New York; I. Ekholm, National Aniline Chemical Company, New York.

W. Fathers, The Dental Edison Company, Detroit, Mich.; R. E. Flynn, Union Trust Company, Detroit, Mich.; J. Arthur Ford, Acacia Mutual Life Association, 101 Indiana avenue, Washington, D. C.; Charles W. Fry, International Paper Company, 100 East 42nd street, New York.

Charlton M. Gaines, Acacia Mutual Life Association, 101 Indiana avenue, Washington, D. C.; B. W. Gillespie, The Whitaker Paper Company, Baltimore, Md.

Wm. D. Hall, United Typothetae of America, Washington, D. C.; Wm. D. Harper, W. D. Harper, Inc., 225 Fourth avenue, New York; Alfred J. Hartman, United Typothetae of America, Tower Building, Washington, D. C.; F. W. Hastings, American Writing Paper Company; Gilford Henderson, Brown Company, Portland, Me.; D. R. Howarth, Richie Howarth Paper Company, 804 Sansom street, Philadelphia.

Bjarne Johnsen, Hammermill Paper Company, Erie, Pa.; T. M. Johnson, New York University, New York.

G. W. Kastensmith, Benche Printing Company, 31 Lafayette street, Schenectady; Ralph Keenan, Whiting-Patterson Company, 320 North 13th street, Philadelphia; Clyde E. Kellogg, United States Chamber of Commerce, 1615 H street, N. W., Washington, D. C.; T. U. Kiely, American Writing Paper Company, Holyoke, Mass.; James W. King, Electric Bond and Share Company, 2 Rector street, New York.

Frank E. A. Larson, 45 Vee street, N. W., Washington, D. C.; J. LeRoy Lennstrom, American Express Company, 65 Broadway, New York.

Leo H. McCall, New York Life Insurance Company, 51 Madison avenue, New York; James J. McCue, City Record, New York; W. H. McManus, Jr., McGraw Hill Publishing Company, Inc., 10th avenue and 36th street, New York; Oswald F. Marquardt, Marquardt Blake & Decker, Inc., 153 Spring street, New York; Edward F. Moody, Brown Company, Portland, Me.; J. S. Moss, A. & W. P. R. R. W. Ry. of Alabama-Georgia Railroad, 4 Hamter street, Atlanta, Ga.; C. F. McConnell, Sears Roebuck & Co., 4640 Roosevelt boulevard, Philadelphia; Norman S. Meese, United States Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.

E. H. Naylor, Writing Paper Manufacturers Association, 44 Vernon street, Springfield, Mass.; George D. Neilson, United States Daily, Washington, D. C.; Newton L. Nourse, Brown Company, Berlin, N. H.

C. B. Peto, Hammermill Paper Company, 51 East 42nd street, New York; A. L. Pratt, Allied Paper Mills, Kalamazoo, Mich.; H. P. Pitcher, R. H. May Company, Inc., Broadway at 34th street, New York; Robert Porter, Provident Trust Company, 17th and Chestnut streets, Philadelphia; D. W. Pratt, Butler Paper Corporation, Chicago; Joseph P. Prescott, Collins Manufacturing Company, Holyoke, Mass.

E. W. Raively, Richie-Howarth Paper Company, 904 Sansom street, Philadelphia; Halsey E. Ramsen, The Whitaker Paper Company, Baltimore, Md.; H. L. Richardson, Woodward & Lothrop, Washington, D. C.; Wm. H. Rourke, The Rourke Eno Paper Company, Hartford, Conn.

Wm. N. Schaefer, R. P. Andrews Paper Company, Washington, D. C.; Lon A. Schimpf, Federal Trade Commission, Washington, D. C.; Theo. Schlenker, Woodward & Lothrop, 10th and F. streets, N. W., Washington, D. C.; F. J. Schlink, American Standards Association, 20 West 39th street, New York; S. A. Sills, Convention Reporting Company, 17 Battery Place, New York; C. E. Steacy, Remington Rand, Inc., Buffalo, N. Y.; N. H. Stuart, Remington Rand (Inc.), Buffalo, N. Y.; J. E. Surrick, N. W. Ayer & Son, Philadelphia; Frank T. Swain, G. A. Renard, Secretary, National Association of Purchasing Agents, 11 Park place, New York; Conrad Swearer, Consolidated Gas, Electric Light and Power Company, Baltimore, Md.; A. J. Sweeney, Whiting Paper Company, 619 Chestnut street, Philadelphia.

Robert C. Taif, A. W. P. Co., Holyoke, Mass.; A. F. Trevi, The Whiting Paper Company, 619 Chestnut street, Philadelphia.

R. L. Van Boskirk, Nation's Business, 1615 H street, N. W., Washington, D. C.; F. O. Veilth, United States Department of Agriculture, Washington, D. C.

William G. Wilson, 38 Livingston street, Brooklyn, N. Y.; F. J. Waldeck, The Cleveland Trust Company, Cleveland, Ohio; William H. Walling, Abbott Press and Mortimer-Walling (Inc.), 460 West 34th street, New York; R. M. Watt, Kimberly-Clark Corporation, 122 East 42nd street, New York; R. A. Wight, Crane & Co., Dalton, Mass.; H. M. Werntz, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.; S. L. Willson, American Writing Paper Company (Inc.), Holyoke, Mass.

G. K. Burgess, Geo. W. Bicking, W. E. Emley, Royal H. Rasch, B. W. Scribner, Merle B. Shaw, Harry H. Steidle, Robert W. Voeth, and R. A. Martino, of the Bureau of Standards, Department of Commerce.

R. M. Hudson and P. H. H. Dunn, of the Bureau of Standards, Department of Commerce, Division of Simplified Practice.

Holyoke Paper Mills Handicapped by Drouth

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 1, 1929.—The continued drought in this section forced the Holyoke Water Power Company to close their head gates for the second time Saturday, but the water was running over the flashboards Monday and it looked as though they would go through the week without further closing of the gates. Many of the paper mills were forced to suspend operations.

Fir-Tex Board Co. Moves From Portland

PORTLAND, Ore., October 5, 1929.—The Fir-Tex Insulating Board Company has removed its offices from Portland to St. Helens, Ore.

THE SIGN OF GOOD FELTS

FELTS FOR ALL GRADES OF PAPER
THAT GIVE SATISFACTION

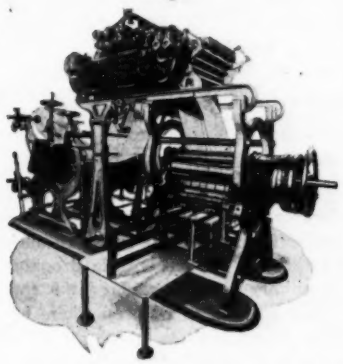
MADE BY **THE WATERBURY FELT CO.**
AT **SKANEATELES FALLS, N.Y.**

PAPER MAKERS
FELTS AND JACKETS

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of PAPER TRADE JOURNAL published weekly at East Stroudsburg, Pa., for October 1, 1929—State of New York, County of New York, ss.: Before me, a notary public in and for the State and county aforesaid, personally appeared George S. Macdonald, who, having been duly sworn according to law, deposes and says that he is the publisher of the PAPER TRADE JOURNAL and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, George S. Macdonald, 10 East 39th st., New York, N. Y. Editor, H. J. Berger, 10 East 39th st., New York, N. Y. Managing Editor, H. J. Berger, 10 East 39th st., New York, N. Y. Business Manager, George S. Macdonald, 10 East 39th st., New York, N. Y. 2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Lockwood Trade Journal Co., 10 East 39th st., New York, N. Y. Stockholders: George S. Macdonald, 10 E. 39th st., New York, N. Y. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.): None. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him. 5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is .....(This information is required from daily publications only.)

GEORGE S. MACDONALD, Signature of Publisher.
Sworn to and subscribed before me this 26th day of September, 1929.
(Seal) MAX GROSS,
Notary Public, New York Co. No. 262
New York Co. Reg. No. 0-122
(My commission expires March 30, 1930.)

H-S MACHINE CO.



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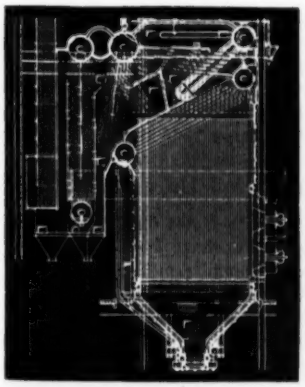

BADENHAUSEN STEAM GENERATING UNITS

installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

Result:—Enormous savings in cost of pulp and paper produced.

BADENHAUSEN CORPORATION

General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.

Obituary

Edward T. Newton

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 1, 1929.—Edward T. Newton, 64, of the well known family of paper makers of that name, died Thursday morning at the Holyoke Hospital, where he had been under treatment for a year since he was stricken at Fruitland, Fla. He retired from active business several years ago, since which time he had spent his winters in Florida.

Mr. Newton was born in Greefield, son of the late James H. and Sarah (Taft) Newton. His father was interested in several paper making ventures and of later years particularly in the Chemical Paper Company, Norman Paper Company, and the Wauregan Paper Company. In these companies Edward was associated with his father for a number of years. After Mr. Newton, Sr., sold out his properties to the American Writing Paper Company, Mr. Newton retired from active business making several trips to Europe. He was a graduate of Holyoke High School, Williston Seminary and the Massachusetts Institute of Technology, being a member of the Boston Cadets while at the latter institution. He was a member of the Second Congregational Church and of the Masonic fraternity and of several Holyoke clubs.

Besides his wife, Winifred, he left two sons, Payson and Roger, both of Holyoke; a sister, Miss Leila Newton, of Los Angeles, and a brother, J. Bertram Newton, of Holyoke. The funeral was held Saturday afternoon with burial in Forestdale.

Douglas W. Mabee

[FROM OUR REGULAR CORRESPONDENT]

SARATOGA SPRINGS, N. Y., October 5, 1929.—Douglas W. Mabee, pioneer paper manufacturer of this city, died during the past week following a long illness. He was born in Brooklyn and after being educated in a military academy entered the employ of the Erie Railroad. In 1875 he went to Ballston where he entered the employ of the West Paper Mills as an official and director. During his stay in Ballston he served two terms as Mayor and after the sale of the paper mills he returned to Saratoga Springs.

At the time of his death he was vice president of the National Folding Box Company, of New Haven, a director of the Adirondack Trust Company, and president of the National Bank of Ballston. He was a prominent member of the Saratoga Springs Golf Club besides being identified with various fraternal organizations. The survivors include his wife, three sons and three daughters.

Arthur A. Allen

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 7, 1929.—The paper trade throughout Toronto and Ontario were shocked over the week-end to learn of the death of Arthur G. Allen, who for years had been connected with Paper Sales, Ltd., King street, Toronto, and the moving spirit in many branches of amateur sport in the city. The late Mr. Allen died from pleuro-pneumonia contracted from a cold following a golf outing. He had only been ill a few days, death taking place in a hospital.

Born in Toronto in 1883, Mr. Allen early broke into the paper selling game and was considered the right hand man of Paper Sales, Ltd. As a leading sportsmen's figure in Toronto he acted as secretary and generally managed the bowling tournament every year of the Toronto Carton Council. He was a Mason, a keen business man and well-liked by all with whom he came into contact. A widow and one son survive.

William Powers

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 8, 1929.—William Powers, of 86 North Canal street, one of the oldest paper makers in the city died last week at the Providence Hospital. He was born in Russell and had been engaged in paper making over fifty years coming to Holoyke about fifty-one years ago. For the past 35 years he had been boss machine tender at the Crocker Division of the American Writing Paper Company, Inc. He leaves two sons, George and Fred, of this city, and two daughters, Mrs. Edward Kjoller, of Toledo, Ohio, and Mrs. Howard Moran, of Holyoke. The funeral was held yesterday morning at the Rosary Church with burial in Calvary cemetery.

Richard Nordstrom

MECHANICVILLE, N. Y., October 5, 1929.—A prominent figure in the paper industry passed away during the past week when Richard Nordstrom, for many years superintendent of the West Virginia Pulp and Paper Company, died after a brief illness. He was connected with the firm as general superintendent until last spring when ill health forced him to take a leave of absence. He recently underwent an operation from which he failed to rally. He was born in Sweden in 1887 but had resided in this country virtually his entire life.

Captain A. Lahaye

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 7, 1929.—Captain A. Lahaye died recently at his home in Sault Ste. Marie, Ont., after an illness of a week. Captain Lahaye formerly resided in Blind River, but went to the Sault seventeen years ago. He sailed the Great Lakes for nineteen years and for a number of years had been captain of the Abitibi Power and Paper Company's steamer *George Emerson*, being in command when taken ill.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 9, 1929.—The Government Printing Office has received the following bids for 8,000 pounds of 20 x 25-125, fifty per cent rag laid cover paper; R. P. Andrews Paper Company, at 12.5 cents per pound; Knowlton Brothers, 19.5 cents; Worthy Paper Company, 23.5 cents; Old Dominion Paper Company, 14.49 cents; Reese & Reese, 14.28 cents; Atlantic Paper Company, 16 cents.

The Cauthorne Paper Company will furnish 271,450 pounds (1,220,000 sheets) of 40 x 52=222½, white sulphite bond paper at 6.47 cents per pound, bids for which were received on September 18.

The Government Printing Office has received the following bids for 57,400 ponuds of 32 x 42, white sulphite bond paper; Old Dominion Paper Company, at 6.549 cents per pound; Cauthorne Paper Company, 6.569 cents; Reese & Reese, Inc., 6.96 cents; Dobler & Mudge, 6.59 cents; Whitaker Paper Company, 6.805 and 7.305 cents; R. P. Andrews Paper Company, 6.75 cents; Aetna Paper Company, 7.52 cents; Walker Goulard Plehn Company, 6.9 cents; Import Paper Company, 7.15 and 6.85 cents; Atlantic Paper Company, 6.69 cents; and Barton, Duer & Koch Paper Company, 6.73 cents.

The Printing Office has also received the following bids for 33,500 pounds of 75 per cent rag 24 x 38=134 lbs., laid antique book paper; R. P. Andrews Paper Company, at 18 cents; Whitaker Paper Company, 17 cents; Old Dominion Paper Company, 15.98 cents; Worthy Paper Company, 17.49 cents; Atlantic Paper Company, 18.5 cents; Reese & Reese, Inc., 13.05 cents; Barton, Duer & Koch Paper Company, 17.45 cents; Allied Paper Mills, 18 cents; and Walker Goulard Plehn Company, 16 cents.

Rates on Wood Pulp Found Unreasonable

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 9, 1929.—Rates on imported wood pulp from Baltimore to Buck Run, Pa., have been found unreasonable by the Interstate Commerce Commission in a decision rendered in the case of the Ajax Paper Mills, Inc., against the Pennsylvania Railroad Company. Reparation was awarded. Shipments of wood pulp, from Philadelphia to Buck Run were not shown to have moved interstate.

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All Grades

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CANADA CEMENT BUILDING
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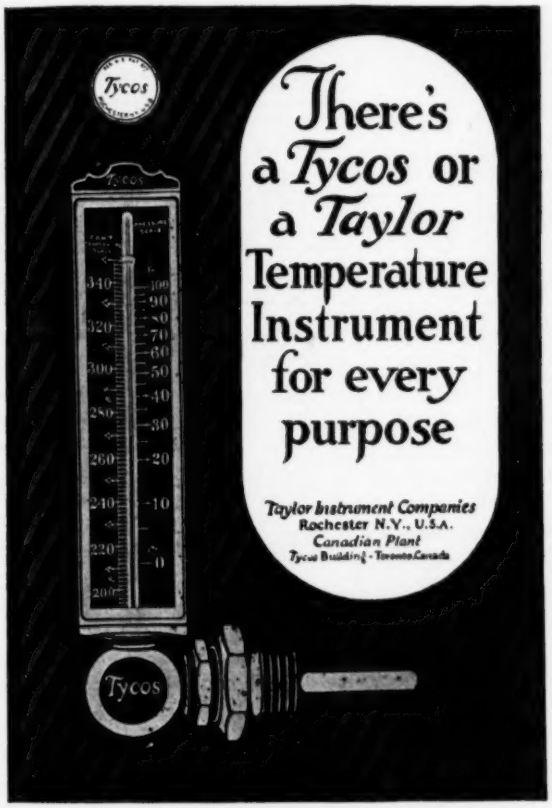

Starch—

A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

Our SPECIAL PAPER brand for beater-sizing increases strength of sheet and gives improved finish.

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The STEEL PROCESS BABBITT
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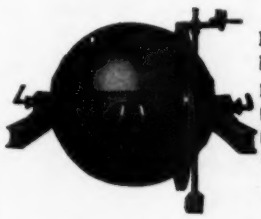

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THE BIGGS BOILER WORKS CO.
AKRON, 20, OHIO

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 5, 1929.

SUMMARY

Cigarett paper .....485 cs.
Wall paper .....25 bls
Paper hangings .....11 bls., 6 cs.
News print .....1526 rolls
Printing paper .....90 cs.
Wra ping paper .....19 cs.
Filter paper .....159 bls., 20 cs.
Drawing paper .....5 cs.
Tissue paper .....27 cs.
Condenser tissue paper .....46 cs.
Writing paper .....46 cs.
Surface coated paper .....158 cs.
Baryta coated paper .....180 cs.
Gold coated paper .....7 cs.
Photo paper .....6 cs.
Colored paper .....69 cs.
Silk paper .....10 cs.
Stencil paper .....12 cs.
Transparent greaseproof paper .....75 cs.
Garnet paper .....5 cs.
Envelopes .....63 cs.
Straw board .....549 rolls
Miscallenaous paper ....776 rolls, 244 bls. 450 cs.

CIGARETTE PAPER

De Manduit Paper Corp., Pipestone County, Havre, 474 cs.
P. J. Schweitzer, Pr. Wilson Marseilles, 169 cs.
Liggett & Myers Tobacco Co., Majestic Southampton, 22 cs.
Standard Products Corp., Majestic Southampton, 20 cs.

WALL PAPER

F. A. Binder, Muenchen Bremen, 4 bls.
D. C. Andrews & Co., St. Louis Hamburg, 2 bls.
J. E. Bernard & Co., St. Louis Hamburg, 10 bls.
F. J. Emmerich, St. Louis Hamburg, 3 bls.
A. C. Dodman Jr. Inc., American Trader London, 3 bls.
F. A. Binder, Pr. Roosevelt Bremen, 3 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnesota London, 3 bls., 3 cs.
Whiting & Patterson Co., Inc., Majestic Southampton, 3 cs.
A. C. Dodman Jr. Inc., Scythia Liverpool, 8 bls.

NEWS PRINT

Parsons & Wittemore, Inc., Muenchen Bremen, 485 rolls.
Stora Kopperberg Corp., Kungsholm Gothenburg, 125 rolls.
Perkins Goodwin & Co., St. Louis Hamburg, 397 rolls.
H. Reeve Angel & Co., Inc., Sagauche Helsingfors, 519 rolls.

PRINTING PAPER

E. Dietzgen & Co., N. Amsterdaw Rotterdam, 40 cs.
International F'd'g Co., N. Amsterdam Rotterdam, 8 cs.
Tice & Lynch, Tuscania London, 2 cs.
Japan Paper Co., Sarcoxie Havre, 40 cs.

WRAPPING PAPER

Keller Dorian Paper Co., Bergengaria Southampton, 7 cs.
Sylvania Industrial Corp., Lapland Antwerp, 12 cs.

FILTER PAPER

A Gusmer Inc., N. Amsterdam Rotterdam, 105 bls.
H. Reeve Angel & Co. Inc., Tuscania London, 8 cs.
H. Reeve Angel & Co. Inc., Majestic Southampton, 54 bls., 12 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., Tuscania London, 3 cs.
Keuffel & Esser, Tuscania London, 2 cs.

TISSUE PAPER

F. C. Strype, Sagauche Helsingfors, 24 cs.
G. W. Sheldon & Co., American Trader London, 3 cs.

CONDENSER TISSUE PAPER

Parsons & Whittemore, Inc., Scythia Liverpool, 26 cs.
F. C. Strype, C. Biancamano Genoa, 20 cs.

WRITING PAPER

I. Beckhard. Muenchen Bremen, 21 cs.
D. C. Andrews & Co., St. Louis Hamburg, 4 cs.
Portenoy Co., Majestic Southampton, 1 cs.
Guibout freres, Majestic Southampton, 4 cs.
Meadows Wye & Co., Sarcoxie Havre, 1 cs.
Jay Thorpe, Inc., Sarcoxie Havre, 12 cs.
L. Bamberger & Co., Sarcoxie Havre, 1 cs.
American Express Co., Sarcoxie Havre, 1 cs.
Gimbel Bros., Sarcoxie Havre, 1 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Arabic Antwerp, 49 cs.
Gevaert Co of America, Lapland Antwerp, 109 cs.

BARYTA COATED PAPER

Globe Shipping Co., Muenchen Bremen, 106 cs.
Globe Shipping Co., Pr. Roosevelt Bremen, 74 cs.

GOLD COATED PAPER

F. Murray Hill Co., Muenchen Bremen, 7 cs.

PHOTO PAPER

J. H. Schroeder Banking Corp., Muenchen Bremen, 6 cs.

COLORED PAPER

L. Duysters Co., Lapland Antwerp, 8 cs.
S. Gilbert, Muenchen Bremen, 10 cs.
J. Beckhard, Muenchen Bremen, 9 cs.
J. J. Shore, Muenchen Bremen, 5 cs.
——,Muenchen Bremen. 35 cs.
McKesson & Robbins Inc., Pr. Roosevelt Bremen, 2 cs.

SILK PAPER

Globe Shipping Co., Pr. Roosevelt Bremen, 10 cs.

STENCIL PAPER

International F'd'g Co., St. Louis Hamburg, 2 cs.
——, St Louis Hamburg, 10 cs.

TRANSPARENT GREASEPROOF PAPER

Central Hanover Bank & Trust Co., St. Louis Hamburg, 75 cs.

GARNET PAPER

United Hardware & Tool Corp., N. Amsterdam Rotterdam, 5 cs.

ENVELOPES

Globe Shipping Co., Muenchen Bremen, 61 cs.
Tice & Lynch, Tuscania London, 2 cs.

STRAW BOARD

Perkins Goodwin & Co., N. Amsterdam Rotterdam, 259 rolls.
Spaulding & Tewksbury, N. Amsterdam Rotterdam, 90 rolls.
A. Vuyk, N. Amsterdam Rotterdam, 200 rolls.

MISCELLANEOUS PAPER

Globe Shipping Co., N. Amsterdam Rotterdam, 49 cs.
Steiner Paper Corp., N. Amsterdam Rotterdam, 42 cs.
Winter Wolff & Co., N. Amsterdam Rotterdam, 8 bls.
Japan Paper Co., N. Amsterdam Rotterdam, 12 cs.
E. Dietzgen & Co., N. Amsterdam Rotterdam, 27 cs.
Taub Hummel & Schnall, Muenchen Bremen, 6 cs.
H. Reeve Angel & Co. Inc., Kungsholm Gothenburg, 99 rolls, 5 bls.
Wilkinson Bros. & Co. Inc., Kungsholm Gothenburg, 15 rolls, 23 bls.
Kramer & Co., Kungsholm Gothenburg, 204 bls.
J. W. Kampton Jr. & Co., Pipestone County Havre. 4 cs.
Arkell Safety Bag Co., Sagauche Gothenburg, 469 rolls.
Crepe Kraft Co., Sagauche Gothenburg, 139 rolls.
Union Paper & Twine Co., Sagauche Gothenburg, 42 rolls.
B. Ullmann & Co., Sagauche Gothenburg, 12 rolls, 4 bls.
Fuchs & Lang Manfg. Co., Pr. Roosevelt Bremen, 2 cs.
M. J. Corbett & Co., Pr. Roosevelt Bremen, 13 cs.
Steffens Jones Co., Mercier Antwerp, 52 cs.

RAGS, BAGGINGS, ETC.

Overton & Co., N. Amsterdam Rotterdam, 241 bls. bagging.
Irving Trust Co., N. Amsterdam Rotterdam, 13 bls rags.
A. W. Fenton, Inc., Muenchen Bremen, 221 bls. rags.
Intl Acceptance Bank, West Arrow Antwerp, 11 bls. rags.
Albany Fibre Co., West Arrow Antwerp, 12 bls. rags.
D. M. Hicks Inc., West Arrow Antwerp, 155 bls. flax waste.
E. Butterworth & Co. Inc., West Arrow Antwerp, 54 bls. bagging.
E. Butterworth & Co. Inc., Bellflower Manchester, 39 bls. rags.
Irving Trust Co., Bellflower Manchester, 39 bls. rags.
Castle & Overton, Inc., Bellflower Manchester, 4 bls. rags, 53 bls. bagging.
Maunfacturers Trust Co., Hellig Olav Copenhagen, 129 bls. rags.
B. D. Kaplan, St. Louis Hamburg, 19 bls. rags.
Irving Trust Co., Pipestone County Dunkirk, 75 bls. rags.
Castle & Overton, Inc., Pipestone County Havre, 131 bls. rags.
Liberty Natl Bank & Trust Co., Adriatic Liverpool, 63 bls. bagging.
Darmstadt Scott & Courtney, Havana Maru Yokohama, 155 bls. rags.
Darmstadt Scott & Courtney, Havana Maru Yakohama, 250 bls. wipers.
Brown Bros. & Co., Cameronia Glasgow, 66 bls. paper stock.
N. Y. Trust Co., Minnesota London, 38 bls. rags.
Amtorg Trading Co., Republic Bremen, 309 bls. rags.
Equitable Trust Co., Republic Bremen, 3901 bls. rags.
Equitable Trust Co., Republic Bremen, 133 bls. flax ends.
E. Mayer, Naples Maru Hamburg, 120 bls. rags.
F. Stern, Naples Maru Hamburg, 67 bls. rags.
V. Ga laup, Exmoor Bari, 100 bls. rags.
D. I. Murphy, Sarcoxie Havre, 12 bls. rags.
V. Galaup, Sarcoxie Havre, 112 bls. rags.
A. W. Fenton, Inc., Sarcoxie Havre, 7 bls. rags.
V. Galaup, Sarcoxie Dunkirk. 73 bls. rags.
D. I. Murphy, Sarcoxie Dunkirk, 37 bls. rags.
1st National Bank of Boston, Sarcoxie Dunkirk, 98 bls. cotton waste.
A. W. Fenton, Inc., Borodino Antwerp, 52 bls. rags.
Royal Manfg. Co., Borodino Antwerp, 49 bls. cotton waste.
Gallagher & Ascher, Borodino Antwerp, 52 bls. rags.
Castle & Overton, Inc., Borodino Antwerp, 112 bls. rags, 188 bls. flax waste.
Katzenstein & Keene, Inc., Borodino Antwerp, 139 bls. bagging.
Darmstadt Scott & Courtney, Borodino Antwerp, 26 bls. rags.
Century Papermills Supply Corp., Borodino Antwerp, 6 bls rags.
G. W. Millar & Co., Borodino Antwerp, 109 bls. flaxwaste.
B. D. Kaplan, Borodino Antwerp, 22 bls. rags.
Guaranty Trust Co., Borodino Antwerp, 31 bls. bagging.
E. J. Keller Co. Inc., Borodino——,35 bls. flax waste. 61 bls. threads.
W. Schall & Co., Mercier Antwerp, 128 bls. rags.

OLD ROPE

Brown Bros. & Co., Lapland Antwerp, 53 coils.
I. C. van Stallie, Muenchen Bremen, 23 coils.
International Purchasing Co., Innoko Rotterdam, 117 coils.
Darmstadt Scott & Courtney, Innoko Rotterdam, 15 coils.
Brown Bros. & Co., Cristobal Colon Coruna, 111 coils.

WOOD PULP

M. Gottesman & Co, Inc., Gonzenheim Iggesund, 875 bls. sulphite 175 tons.
Bulkley Dunton & Co., Gonzenheim ——, 1500 bls. woodpulp, 300 tons.
——, Gonzenheim Hernosand, 4770 bls, sulphite, 795 tons.
——, Gonzenheim Hernosand, 3000 bls. sulphate, 500 tons.
Price & Pierce, Ltd., Gonzenheim Walvik, 3000 bls. sulphite, 500 tons.
Price & Pierce, Ltd., Gonzenheim Walvik, 400 bls. sulphate 66 tons.
Scandinavian Pulp Agency, Inc., Gonzenheim Skutskar, 375 bls. wood pulp.
Stora Kopperberg Corp., Gonzenheim Skutskar, 1205 bls. wood pulp.
E. M. Sergeant & Co., Kungsholm Gothenburg, 449 bls. dry soda pulp.
Johanson Wales & Sparre, Inc., Kungsholm Gothenburg, 299 bls. dry soda pulp.
O. E. Kiaer, Kungsholm Gothenburg, 600 bls. wood pulp.
Atterbury Bros. Inc., Hellig Olav Oslo, 500 bls wood pulp 100 tons.
Lagerloef Trading Co., Sagauche Helsingfors, 160 bls. sulphite 27 tons.
G. S. Kerr Ltd., Dago St. Albans, 1173 cords wood pulp.

WOOD PULP BOARDS

Wilkinson Bros. & Co. Inc., Kungsholm Gothenburg, 59 rolls.

WOOD FLOUR

F. W. Schmalz Co., N. Amsterdam Rotterdam, 400 bags.

(Continued on page 76)

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Ticonderoga. N Y., U. S. A.
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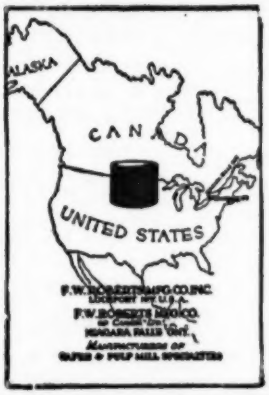
B U R R S



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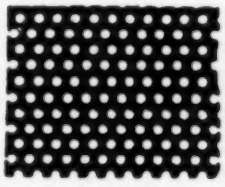

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Imports of Paper and Paper Stock

(*Continued from page 74*)

State Chemical Co., N. Amsterdam Rotterdam, 1000 bags.
The Burnet Co., Kungsholm Gothenburg, 3656 bags.
Bakelite Corp., Innoko Rotterdam, 646 bags, 48,170 kilos.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 5, 1929.

Phila. National Bank, L. Merchant, London, 96 bls. rags.
W. J. Jones Co., L. Merchant, London, 331 bls. rags.
J. Andersen & Co., Sagauche Gothenburg, 500 bls. sulphite.
French American Banking Corp., Exmoor Bari, 35 bls. rags.
National City Bank, Exmoor Bari, 66 bls. rags.
Gimbel Bros., Sarcoxie Havre, 2 cs. writing paper.
W. J. Jones Co., Sarcoxie Havre, 6 cs. wall paper.
J. W. Hampton Jr. Co., Sarcoxie Havre, 3 cs. writing paper.
Katzenstein & Keene, Inc., Sarcoxie Havre, 67 bls. rags, 50 bls. bagging.
J. A. Steer & Co., Sarcoxie Havre, 47 bls. rags.
D. I. Murphy, Sarcoxie Havre, 273 bls. bagging.
Penn Rag & Metal Co., Sarcoxie Havre, 6 bls. rags.
A Hurst & Co., Sarcoxie Havre, 108 bls. rags.
V. Galaup, Sarcoxie Havre, 281 bls. rags.
Delaware Hard Fibre Co., Sarcoxie Havre, 87 bls. rags.
Burkart Manfg. Co., Sarcoxie Havre, 115 bls. rope.
E. Mayer, Sarcoxie Havre, 16 bls. rags.
J. Walworth & Sons, Sarcoxie Havre, 20 bls. rags.
Union Waste Co., Sarcoxie Havre, 54 bls. rags.
S. Birkenstein & Son, Sarcoxie Dunkirk, 61 bls. rags.
Chase National Bank, Sarcoxie Dunkirk, 42 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie Dunkirk, 257 bls. rags.
V. Galaup, Sarcoxie Dunkirk, 40 bls. rags.
D. I. Murphy, Sarcoxie Dunkirk, 149 bls. rags, 126 bls. bagging.
Hoffman Lion Mills Co., Sarcoxie Dunkirk, 54 bls. rags.
E. J. Keller Co. Inc., City of Alton——, 25 bls. rags.

BOSTON IMPORTS

WEEK ENDING OCTOBER 5, 1929.

Kalbfleisch Corp., Pipestone County Havre, 250 bags casein, 25212 kilos.
W. Schall & Co., Pipestone County Havre, 176 bls. bagging.
Bank of Commerce & Trust Co., Pipestone County Havre, 74 bls. rags.
Irving Trust Co., Pipestone County Havre, 14 bls. rags, 49 bls. string waste.
Baring Bros. & Co., Pipestone County Havre, 57 bls. new cuttings.
True & McClelland, Pipestone County Havre, 27 bls. new cuttings.
Holingsworth Vose Co., Pipestone County Havre, 61 bls. bagging.
Atkinson Haserick Co., Pr. Wilson Genoa, 14 cs. paper.
The Borregaard Co. Inc., Sagauche Bamble, 300 bls, sulphite, 50 tons.
The Borregaard Co. Inc., Sagauche Gothenburg, 1250 bls. wood pulp 253 tons.
J. Andersen & Co., Sagauche Gothenburg, 2500 bls. sulphite, 508 tons.
Lagerloef Trading Co., Sagauche Helsingfors, 864 bls. sulphite 142 tons.
G. F. Malcolm Co., Scythia Liverpool, 6 cs. tissue paper.
G. F. Malcolm Co., Scythia Liverpool, 24 cs. carbonizing tissue paper.

PORTLAND IMPORTS

WEEK ENDING OCTOBER 5, 1929.

Lagerloef Trading Co., Sagauche Helsingfors, 762 bls. wood pulp, 127 tons.
Lagerloef Trading Co., Sagauche Helsingfors, 4390 bls. sulphite, 1537 tons.
The Borregaard Co. Inc., Sagauche Bamble, 1200 bls. sulphate 200 tons.
The Borregaard Co. Inc., Sagauche Gothenburg, 1500 bls. wood pulp, 304 tons.
Waterfalls Papermills Co., Sagauche Gothenburg, 6000 bls. wood pulp 1217 tons.
Parsons & Whittemore, Inc., Sagauche Gothenburg, 150 bls. sulphate 25 tons.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 5, 1929.

Congeloeum Nairn Co., West Arrow Antwerp, 1147 bls. rags.
A. Hurst & Co., West Arrow Antwerp, 200 bags casein, 15000 kilos.
M. Gottesman & Co. Inc., Gonzenheim Iggesund, 2600 bls. sulphite, 520 tons.
M. Gottesman & Co. Inc., Gonzenheim Svartvik, 7400 bls. wood pulp——.
Castle & Overton, Inc., Gonzenheim Svartvik, 300 bls. sulpite.
Stora Kopperberg Corp., Gonzenheim Skutskar, 2400 bls. woodpulp.
——,Gonzenheim Hernosand, 3330 bls. sulphite 555 tons.
——, Gonzenheim Hernosand, 600 bls. sulphate 100 tons.
Bulkley Dunton & Co., Gonzenheim——, 4400 bls. wood pulp 880 tons.
The Borregaard Co., Inc., Sagauche Gothenburg, 250 bls. wood pulp 50 tons.
Baxter Paper Co., Sagauche Gothenburg, 31 bls. paper.

NORFOLK IMPORTS

WEEK ENDING, OCTOBER 5, 1929

E. Butterworth & Co. Inc., West Arrow Antwerp, 175 bls. bagging.
The Borregaard Co. Inc., Sagauche Bamble, 900 bls. sulphate 150 tons.

Annual Forestry Tour of Adirondacks

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., September 21, 1929.—The sixth annual forestry tour of the Adirondacks sponsored by the State Conservation Commission will be conducted September 27 to 30 and will cover the eastern and northern portions of that territory. The tour will start from the state tree nursery at Saratoga where 57,000,000 trees are now growing. The first day's program includes visits to the municipal forest in this city, the Warren County forest, the numerous plantations on the estate of Thomas C. Luther, the largest individual tree planter in the world who is planting at the rate of a million a year, and stops will also be made to show the effectiveness of the work that the state is doing to control white pine blister rust. A visit will also be made to the Charles Lathrop Pack Demonstration Forest at Warrensburg, which contains some of the finest old growth pine in the state.

Freight Rate Decisions

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 2, 1929.—Rates on sulphite wood pulp, in carloads, from Anacortes, Wash., to Sartell, Minn., have not been found unreasonable or otherwise unlawful by the Interstate Commerce Commission in a decision in the case of the Watab Paper Company against the Chicago & North Western Railway Company. The complaint has been dismissed.

In the case of the Advance Bag and Paper Company against the Central Railroad Company of New Jersey the Commission found that the rate on salt cake, in carloads, from Jersey City, N. J., to Howland, Me., was not unreasonable or otherwise unlawful. Rates on the same commodity from Everett and South Wilmington, Mass., to Howland were found unreasonable. Reasonable rates were prescribed for the future and reparation awarded.

Chicago Paper Tube to Build New Plant

CHICAGO, Ill., October 7, 1929.—The Chicago Paper Tube and Can Company, through its president, David T. Lyons, has purchased 90 x 124 feet at 2046 Walnut street, Chicago, as a site for a new factory. The new factory, which will cost about $75,000, will be built in approximately a year's time according to Mr. Lyons. The new, modern building is being made necessary by a continued increase in the company's business.

Luzerne Paper Mill Resumes

ALBANY, N. Y., September 23, 1929.—The Luzerne Paper Corporation's mill, which closed down eight weeks ago because of involuntary bankruptcy, has been reopened and most of the 100 employes have returned to their jobs. Two receivers for the concern have started the manufacture of heavy wrapper paper in the mill, although William H. Redlien and George J. Hyatt, 2nd, of Albany, cannot give definite information regarding the proposed length of operation. Both were named receivers two months ago.

Marsene Paper Corp. Increases Stock

INDIANAPOLIS, Ind., September 30, 1929.—Officials of the Marsene Transparent Paper Corporation of Gary, Ind., have filed papers with the secretary of state in Indianapolis increasing the capital stock in the sum of 1,500 shares having a par value of $100 each.

Imperial Paper Co. Decreases Stock

HUDSON FALLS, N. Y., September 9, 1929.—The Imperial Paper and Color Corporation has filed notice with the Secretary of State of a decrease in its capitalization from $5,000,000 to $4,000,000. Attorneys L. M. and L. P. Brown represented the firm when the notification papers were filed.

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CLAYTON, N. J.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 9, 1929.

Conditions in the local paper market were satisfactory during the past week and the various standard grades of paper were practically all in good demand. Inquiries for future business are numerous and the closing months of the year promise to be quite active. Sales forces of the leading paper organizations are booking generous orders and are mostly optimistic over the outlook for the future. Prices are generally holding to schedule.

Production of news print is being maintained at about 87 per cent of capacity in United States and Canadian mills and the output is being freely absorbed by the publishers. Contract shipments continue to move in heavy volume. Accumulations in the hands of the manufacturers are not excessive and the news print market is exhibiting a strong undertone at the present time.

Demand for the various grades of paper board is fairly active but the price situation has shown little improvement so far. However, better prices are confidently anticipated in the near future, in some quarters. Some improvement was noticed in the fine paper market and tissues are in better request than of late. The coarse paper market is steadier and the wrapping paper movement is beginning to expand.

Mechanical Pulp

Offerings of both foreign and domestic ground wood are limited, due mainly to curtailed production here and abroad. Contract shipments are going forward with fair regularity. There are a number of inquiries in the market for future business. Prices rule steady to firm and there is little talk of concessions around.

Chemical Pulp

Trading in the chemical pulp market during the past week was moderately active. Both foreign and domestic producers are well sold ahead, on most grades. The feature of the market is the continued strength of strong unbleached and easy bleaching sulphite. Both domestic and imported bleached sulphite rule steady and other grades are practically unchanged.

Old Rope and Bagging

Steadiness prevails in the old rope market. Foreign and domestic manila rope are in excellent request. Offerings are rather scarce and prices are firm. Seasonal conditions prevail in the bagging market. No. 1 scrap bagging is fairly active. Burlap is moving in good volume. Roofing bagging is rather quiet. Prices remain unaltered.

Rags

Most of the business transacted in the domestic rag market was along routine lines. Demand for cotton cuttings was moderate. Mixed rags continue steady. Prices of the various grades are holding to previously quoted levels, in most instances. The tone of the foreign rag market is quiet although dark cottons are in slightly better request.

Waste Paper

Mill interest in the various grades of paper stock appears to be improving. Folded paper and mixed paper are in better demand from the board manufacturers although trading is below normal for the time of year. Book stock is showing signs of improvement. Soft white shavings are in excellent request. No radical price changes have been recorded.

Twine

Business in the twine market is beginning to expand now that the Christmas holiday season is near at hand. Some authorities on the twine industry express the view that trading will be buoyant for the next three or four months, at least. Prices are generally holding to previously quoted levels and reports of shading are infrequent.

Injured Mill Workers Granted Awards

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., October 5, 1929.—A number of injured paper mill workers were this week granted awards when their cases came up before Justice Richardson in Compensation Court. E. G. Eggleston, who was injured while in the employ of Oswego Board Corporation, was awarded compensation for 49 weeks at $25 per week for a twenty per cent loss of his right hand. An award of $69.79 for loss of two toes was made in the case of Leroy Lancor, who was injured while in the employ of the Harrisville Paper Corporation.

Stephen Monatt, who was injured while working for the West End Paper Company was granted $20 a week to apply on the award for permanent injury which will be made in three months. Referee Richardson instructed Monatt to secure work as this sum which was awarded between now and the time of defining the extend of permanent injury would be taken from the permanent injury award. John Heminway, of Deferiet, was given one week's compensation of $22.31 for lost time as the result of an injury received while working at the plant of the St. Regis Paper Company in that place.

Chicago Paper Market Conditions

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 7, 1929.—The local paper market remains much the same as last week. News print production continues to be fairly heavy to meet fall demands and the market is stable. Book papers are reported somewhat weak as the result of over production and accompanying causes. Kraft is also said to be somewhat weaker, this condition depending on the quality of paper made. Some blame this condition to price rates which are not meeting with uniform success. Ground wood papers are in fairly good shape. The fine paper business is reported to be fairly good although there is quite a bit of discussion—and action—going on over the new sulphite bond that is coming in the market at a reputed lower price to compete with some of the old standard water marked grades.

W. E. Perry Buys Plymouth Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 1, 1929.—Walter E. Perry for the past nineteen years connected with the sales department of the Crocker-McElwain Company, has bought the Plymouth Paper Company, paper jobbers, from Fred O. Hanson, of Springfield. The company was founded in 1887 by Mr. Hanson, W. A. Hall and M. R. Williams. Mr. Williams withdrew after the first six months and Mr. Hall died about 10 years later. Mr. Hanson will retire from active business.

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 9, 1929.

BLANC FIXE.—Trading in the blanc fixe market was fairly active during the past week. Prices are generally holding to schedule without difficulty. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is practically unchanged. Supplies are moving into consumption in normal volume for the season. Prices are being maintained at previously recorded levels. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—No radical changes were reported in the casein market. Domestic casein is still quoted at from 16 cents to 18 cents per pound. Argentine standard ground is selling at from 16 cents to 16½ cents, and finely ground at from 16½ cents to 17 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Contract shipments are going forward in excellent volume. Prices remain unchanged. Solid caustic soda is still quoted at from $2.90 to $2.95 and the flake and the ground at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is in a sound position. Shipments against contract are moving in good volume. Prices remain steady and unchanged. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Demand for chlorine from the pulp and paper mills is satisfactory. The contract movement is well up to average. Prices remain unchanged. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on standard contracts. The spot quotation is 3¼ cents per pound.

ROSIN.—Some improvement was noticed in the rosin market and prices are slightly firmer. The grades of gum rosin used in the paper mills are quoted at from $9.20 to $9.25 per 280 pounds, in barrels, on dock. Wood rosin is selling at from $7.00 to $8.05 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Offerings of salt cake are decidedly scarce and the market is exhibiting a strong undertone. Inquiries for future business are numerous. Prices are firmer. Salt cake is now quoted at from $18 to $21 per ton, while chrome salt cake is selling at from $15 to $16 per ton, in bulk, at works.

SODA ASH.—Conditions in the soda ash market are showing signs of improvement. Production is being maintained in sufficient volume to take care of current needs, although offerings are not excessive. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—Most of the business transacted in the starch market was along routine lines. Shipments against contract are going forward at a normal pace. Prices remain unchanged. Special paper making starch is quoted at $3.92 per 100 pounds, in bags, and at $4.19 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is little changed. Production is being maintained in normal volume for the season. Prices are holding to previously quoted levels. Commercial grades are quoted at from $1.40 to $1.55 and iron free at from $1.90 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Supplies of sulphur are going forward in good volume. Prices remain steady. Sulphur is quoted at $18 per ton, at mine, in lots of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—The talc market was moderately active during the past week. Shipments against contract are moving in normal volume. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines, while imported talc is selling at from $18 to $20 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	37.50	@40.00
Straw	52.50	@55.00
Chip	35.00	@37.50
Binders' Boards	65.00	@70.00
Sgl. Mla. Ll. Chip.	47.50	@50.00
Wood Pulp	80.00	@85.00
65 Test Jute Liner	52.50	@ —
85 Test Jute Liner	55.00	@ —

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	30.00	@32.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(On Dock. Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.25
Easy Bleaching	3.00	@ 3.15
No. 1 strong unbleached	2.75	@ 3.00
Mitscherlich unbleached	2.80	@ 3.25
No. 2 strong unbleached	2.40	@ 2.60
No. 1 Kraft	2.35	@ 2.65
No. 2 Kraft	2.30	@ 2.50
Sulphate—		
Bleached	3.60	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.65	@ 3.00
News Sulphite	2.50	@ 2.70
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.10	@ 3.30
Soda Bleached	3.10	@ 3.25
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.65	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.50	@ 8.00
New Unbleached	11.00	@11.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Blue Overall	7.50	@ 8.00
Washables	4.75	@ 5.25
Fancy	5.75	@ 6.31
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.50	@ 8.25
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	2.00	@ 2.10
Dutch Blue Cottons	2.25	@ 2.40
French Blue Linens	2.75	@ 2.85
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.15	@ 2.25
Checks and Blues	1.85	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.55	@ 1.60
Old Shopperies	1.50	@ 1.55
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.40	@ 4.60
Domestic	4.75	@ 5.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.60	@ 2.70
White envelope cuttings	3.00	@ 3.50
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag.	1.45	@ 1.55
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.00	@ 1.10
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.50	@ 1.75
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .80
Container	.57½	@ .60
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.85	@ 2.00
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	.75	@ .80
Strictly Folded	.60	@ .65
No. 1 Mixed Paper	.45	@ .50
Common Paper	.30	@ .35

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Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished Indis—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	4.25	@	4.50
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.25	@	1.35
Solid Books	1.25	@	1.30
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.75	@	.80
Folded News (over-issue)	.80	@	.85
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.60	@	.65
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.09	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.05½	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.09½	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.08	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	75.00
News Board	40.00	@	40.00
Chip Board	38.00	@	40.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.80	@	1.90
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.40	@	1.50
No. 2 Books, light	1.05	@	1.15
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.60	@	.65
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.80	@	.85
Old Newspaper	.50	@	.55

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75
Repacked	.02½	@	.02¾
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.14
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06½
Manila, Sul. No. 2	.03¼	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.04½	@	.05½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls .009	52.50		
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	50.00
Single White, Patent Coated Newsboard			
Bender	65.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	1.75	@	1.80
Print Manila	.80	@	.90
No. 1 Mixed Paper	.45	@	.50
Overissue News	.70	@	.75
Old Newspapers	.55	@	.57½
Box Board, Chip	.55	@	.60

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.50
Manila Rope—			
Foreign	4.25	@	4.75
Domestic	—	@	4.25
Transmission Rope	2.25	@	2.50
Mixed Strings	1.00	@	—
Jute Wool Strings	1.00	@	1.05
Jute Carpet Threads	1.05	@	1.15
Scrap Burlaps	1.37½	@	1.50
Scrap Sisal	1.80	@	2.00
Scrap Sisal for shredding	1.85	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.90	@	2.00
Australian Wool Pouches	3.00	@	3.12½

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.04	@	.04¾
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.50	@	—
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	1.55
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	4.75	@	5.00
New Checks & Blues	4.25	@	4.00
Old Fustians	1.90	@	—
Old Linsey Garments	1.80	@	1.85

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

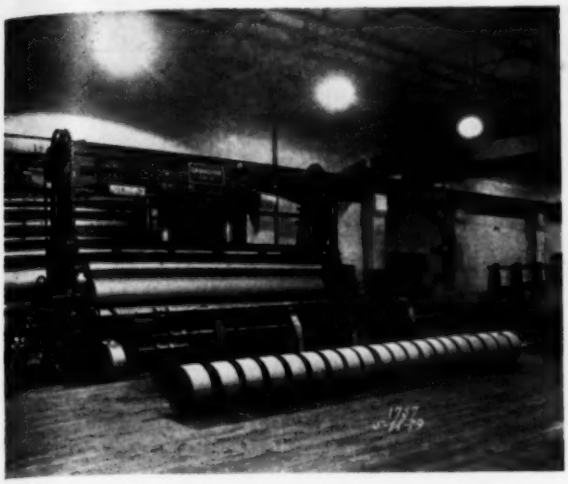
Ground Wood	30.00	@	31.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	78.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.10	@	.10½
Fancy Shirt Cuttings	.05½	@	—



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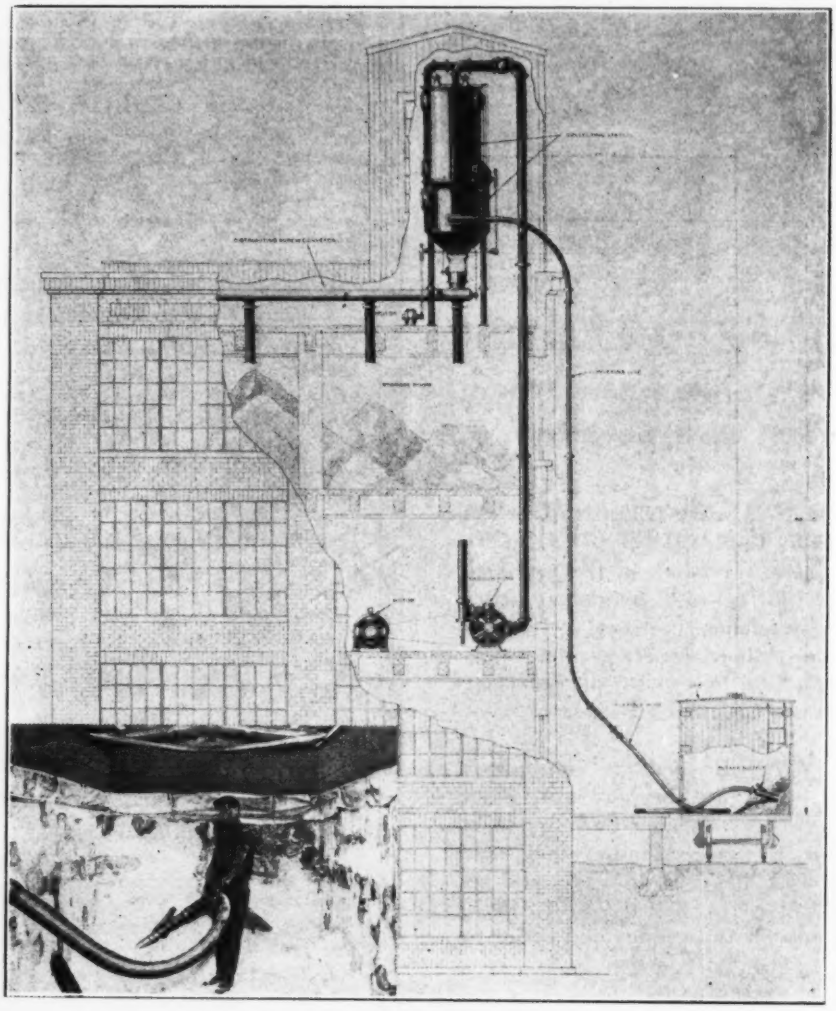

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